SPEECH LANGUAGE PATHOLOGISTS' PRACTICE WITH YOUNG CHILDREN WHO REQUIRE AUGMENTATIVE AND ALTERNATIVE COMMUNICATION: A FOCUS ON SOCIAL COMMUNICATION AND PEER INTERVENTION

by

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ABSTRACT

Survey research methodology was used to elucidate the practices and opinions of speech-language pathologists (SLP) regarding intervention programming addressing social communication and the inclusion of peers for children who require augmentative and alternative communication (AAC). Survey sections included a) demographics, b) general information regarding AAC, and c) practices regarding addressing social communication and peer interactions in intervention. Results of the study indicated that, although SLPs are addressing social communication and are including peers in intervention, more can be done to individualize intervention for children who require AAC. Further, SLPs were asked questions regarding the means available, opportunities, and instruction provided to children who require AAC who were characterized as "active" or "passive" communicators. Differences were noted in the findings with regard to the services provided to children who require AAC and their communication style. Additionally, results of the current investigation highlight specific problems regarding why SLPs are not including peers in intervention. The clinical practices reported by the participants in this investigation were compared to information that has been reported in the literature as best practice regarding intervention for children who require AAC. Ultimately, the study provides a framework for future research in developing social competence in individuals requiring an AAC system.

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CHAPTER ONE

INTRODUCTION AND LITERATURE REVIEW

Introduction

The American Speech-Language-Hearing Association (ASHA) defines augmentative and alternative communication (AAC) as:

> an area of research, clinical and educational practice. AAC involves attempts to study and when necessary compensate for temporary or permanent impairments, activity limitations, and participation restrictions of persons with severe disorders of speech-language production and/or comprehension, including spoken and written modes of communication. (2005, p. 1)

Individuals who may require AAC include those with developmental disabilities, acquired disabilities, progressive neurological disorders, and temporary conditions (Beukelman & Mirenda, 2005).

Binger and Light (2006) suggested that approximately 11-12% of preschool-aged children with special needs will use an AAC system for communication, which translates to approximately 25% of a preschool speech-language pathologist's (SLP's) caseload. These preschoolers may use any type of AAC system, including either or both unaided and aided AAC communication modes. An unaided system does not use any type of aide or device and messages are created through the individual's body. Examples of an unaided communication system include speech, gestures, and sign language. An aided AAC system requires the use of an external aide or some type of equipment. Low technology and high technology are two types of aided AAC systems. No computer elements are used in a low technology aided AAC system where a high technology system utilizes computers with speech synthesizers and/or printers (Beukelman & Mirenda, 2005).

Communicative Competence and AAC

Communicative competence was defined by Light (1989) as "the quality or state of being functionally adequate in daily communication, or of having sufficient knowledge, judgment, and skill to communicate" (p. 138). An individual who requires an AAC system must demonstrate competence in four domains to be considered a competent communicator: linguistic, operational, strategic, and social. Individuals who require AAC experience difficulties in developing effective and efficient communication skills. Therefore, AAC intervention must integrate the use of the four domains to facilitate development of communicative competence.

Enhancing communicative competence for individuals who require AAC may have a large impact on their quality of life, functionality, and ability to interact with others. Smith and Connolly (2008) suggested this might be the case when they examined the perspectives of adults who use AAC and their overall satisfaction with their communication system. There were a wide range of views regarding AAC reported; however, several participants described "aided communication with positive meanings such as voice, freedom, independence, and competence" (Smith & Connolly, 2008, p. 269). The participants clearly did not view their aided AAC systems as simply tools for expressing messages, but as extensions of themselves and as integral to their participation in life. With the increased independence that AAC systems afford, an increased desire may come for interactions with other people, and as Light (1989) indicated, communicative competence is not attained without also acquiring the interpersonal, or social, aspects of communication.

Challenges in Developing Social Communication in Individuals Who Require AAC

Light, Arnold, and Clark (2003) suggested that limited research regarding social competence and AAC use is available despite the importance in developing the ability to communicate for the purpose of increasing social closeness. Social closeness can be defined as a "type of interaction that relates to establishing, maintaining, or developing personal relationships" (Beukelman & Mirenda, 2005, p. 8). During this type of communication, the message is not the primary concern but instead, the interaction itself is the priority (Beukelman & Mirenda, 2005). Light et al. (2003) corroborated this when they quoted a man with cerebral palsy who used AAC to communicate. Diamanti (2000) stated:

> I am alone in my thoughts. I am alone among other people. My identity is locked inside my mind. . . The inability to speak, or the inability to communicate one's own words fluently, is the greatest disability a person can have in the social circle of life. (as cited by Light et al., 2003, p. 361)

His statement demonstrated the crucial part communication plays in developing social closeness, which is critical to the development of friendships and other relationships (Light et al., 2003).

The literature in the AAC field supports Diamanti's words by confirming that individuals who require AAC experience the most difficulty in developing social communication skills (Light et al., 2003). Possible reasons for deficits in social communication may exist because "a) individuals who require AAC may lack the means to demonstrate sociorelational skills, b) individuals who require AAC may lack the social experiences required to develop these skills, c) individuals who require AAC may experience specific deficits in social development that impact their use of sociorelational

skills, and d) individuals who require AAC may not receive appropriate intervention to facilitate their learning of these skills" (Light et al., 2003, p. 364).

Most importantly may be the lack of "appropriate instruction" to assist individuals who require AAC in the acquisition and use of social communication skills necessary to become competent communicators (Light et al., 2003; Light, 1989). It is not enough to provide an AAC system to an individual. Without training and instruction in skills in the areas of linguistic, operational, strategic, and social competency, communicative competence will not be achieved (Light, 1989). As a result, the intent of this investigation was to identify the practices of SLPs and how the development of social competence was addressed for young children who require AAC. Included in social competence is the ability of an individual who requires AAC to communicate and interact with their peers; therefore, this will also be investigated.

Literature Review

Limitations in AAC

Although passivity in individuals who require AAC may exist, the use of an AAC system may contribute to the passive communication style. This can occur for a number of reasons due to the use of an AAC system. First, the rate of communication is decreased as the individual who requires AAC must create messages from their system requiring linguistic and operational competence (Light, 1989). Second, more demands are placed on the individual who requires AAC as they must reference and attend to their communication partner, their AAC system, and the topic or object of conversation which can result in fatigue (Light, 2003). Last, attitude barriers may exist where communication partners are either uncomfortable or unfamiliar with communicating with an individual

who requires AAC (Beukelman & Mirenda, 2005). Therefore, individuals who require AAC and have access to an AAC system must be taught how to achieve communicative competence (Light, 1989, 2003).

Communicative Competence

The development of communicative competence allows a person to gain satisfaction and fulfillment, which empowers them to successfully communicate with others. Communicating one's ideas, thoughts, and feelings helps to develop social closeness and fulfill a basic human right (Light, 2003). However, individuals who utilize other modalities for communication, such as AAC, experience difficulties in developing communication skills. Light argues that both individuals using speech and individuals using AAC systems can become competent communicators, but that they achieve this competence through different experiences. Individuals who require AAC may be subject to rejection and other barriers, which impede their ability to communicate. However, with appropriate intervention and support, individuals who require AAC can learn to communicate successfully with other people (Light, 2003).

Light identified four domains of AAC competence that an individual must acquire to become a competent communicator: linguistic, operational, social, and strategic (1989). Competent communicators "integrate knowledge, judgment, and skills across the linguistic, operational, social, and strategic domains" (Light, 1989, p. 141). The linguistic domain requires familiarity with the form, content, and use of the native language. Becoming linguistically competent can be challenging for individuals who require AAC as they must learn two linguistic systems: their native language, as well as how to create linguistically appropriate phrases utilizing their AAC system. An AAC system may use

different methods to generate syntactically correct utterances (Light, 1989; Light, Beukelman, & Reichle, 2003). For example, line drawings may be used to represent concepts in the spoken language. Thus, an individual who requires AAC must be familiar with two systems to effectively communicate. They must be able to relate the AAC symbols to the spoken words in their language. An individual who requires AAC will also need to be taught how to use multiple symbols together to create more advanced utterances (Light, 2003).

The second domain in the development of communicative competence is the operational domain. Light (2003) states that "operational skills refer to skills in the technical production and operation of AAC systems" (p. 11). Operational skills include the ability to navigate an aided AAC system or use the correct gestures or signs in an unaided system. This domain accounts for the acquisition of knowledge, judgment, and skills for determination of whether messages are correct, efficient, and that the least amount of effort is used to create messages. All variables determine the success of the communicative interaction (Light, 2003). An individual's cognitive, motoric, linguistic, and sensory abilities determine their ability to successfully operate their AAC device (Light, 2003).

Individuals who require AAC apply strategies to help maximize communication with others despite the limitations they experience (Light, 1989, 2003). The strategies used by individuals who require AAC fall in the third domain, strategic competence. Individuals who require AAC may be limited in the symbols they have access to since it is impossible to predict all the vocabulary needed for one to communicate. This may lead to communication breakdowns. Because of this, learning strategies to repair

communicative breakdowns and accommodate vocabulary limitations is essential to the development of communicative competence by individuals who require AAC (Light, 1989, 2003).

The fourth domain discussed in relation to communicative competence is social competence. Social communication is different from other purposes of communication in that it requires participation from both partners who influence each other's subsequent responses throughout the exchange (Light, Collier, & Parnes, 1985; Light, 1997). Sociolinguistic competence and sociorelational competence were identified by Light as the two types of social skills needed to proficiently acquire social communicative competence (1989). Pragmatic language skills are synonymous with sociolinguistic skills; that is, both terms refer to the ability to initiate and remain on topic, take turns in a conversation, and contribute to an interconnected conversation. Communicative functions such as requesting, protesting, and commenting are also included as sociolinguistic skills (Light, 2003).

Sociorelational skills include the ability to "participate actively in interactions, being responsive to partners, demonstrating interest in partners, putting partners at ease, projecting a positive self-image, engaging partners in interaction, and maintaining a positive rapport with partners" (Light, 2003, p. 12). That is, sociorelational skills encompass the interpersonal piece of communication.

Development of sociolinguistic and sociorelational skills, while integrated with the other domains, is crucial to communicative competence. Without social competence, one is at risk for feeling lonely and isolated from society (Light 1989). O'Keefe (1996; as cited by Light et al., 2003) summarized "perhaps no prerequisite of a quality of life is

placed more at risk by communicative disability than that of belonging" (p. 362). Light et al. (2003) state that individuals who require AAC must acquire social competence to develop relationships with others, which, as a result, improves their quality of life (p. 362).

In particular, the development of sociorelational skills contribute to one's ability to establish social closeness. The acquisition of sociorelational skills is vital in participating in meaningful relationships and developing communicative competence (Light et al., 2003).

Individuals who require AAC who fail to develop communicative competence may take a passive role in conversations with other people. This may result in a decline in the length of the interaction and the type of communicative functions utilized to develop the interaction. Ultimately, this negatively impacts the individual's ability to communicate their thoughts, feelings, and opinions (Light, 2003).

Passiveness of Individuals Who Require AAC and Asymmetry in Conversation

A common problem identified in the research literature is the passivity of individuals who require AAC during conversations and other social interactions (Basil, 1992; Iacano, 2003; Light et al., 2003). Evidence suggests that individuals who require AAC take fewer turns in a conversation, do not initiate as often as their conversation partners, and frequently do not respond to communicative requests (Basil, 1992). Research also shows that individuals who require AAC ignore nonobligatory turns and do not provide their communication partner with regular feedback (Light et al., 2003). This

places the burden of communication on the communication partner, the individual who communicates via speech.

A study completed by Harris (1982) discovered a significant difference in response and participation rates between individuals who require AAC and their same-aged peers. This finding was further substantiated by Clarke and Kirton (2003) who found that children utilizing AAC systems showed fewer initiations while mostly responding to others, whereas their typically developing same-aged peers demonstrated higher levels of participation. The typically developing peers in this investigation frequently requested for information (35.9%) whereas the children who required AAC responded with a yes or no for 38.2% of communicative interactions. Harris (1982) further discovered that asymmetrical interaction patterns are apparent in communicative interactions with teachers, and that teachers monopolized conversations with individuals who require AAC by taking longer turns and initiating more interactions. The students who required AAC generally replied with one-word answers to teacher questions and rarely initiated any type of communicative function (e.g., request, protest, etc).

As these research results indicate, an asymmetry in participation patterns exists between individuals who require AAC and their conversation partners who communicate via speech. The individual's ability to manage their AAC system (e.g., operational competence) to contribute to a conversation has been identified as a potential variable that may increase passivity (Farrier, Yorkston, Marriner, & Beukelman, 1985). Buzolich and Wiemann (1988) described speaking conversation partners as domineering, in that they may control the amount and length of participation from an individual who requires AAC. An individual who requires AAC's repertoire of communicative functions may be

limited due to the type of questions used by the conversation partner. Many conversation partners ask only yes/no questions to individuals who require AAC (Light et al., 1985). Because of this, Light and colleagues have stressed the importance of teaching strategies to both individuals who require AAC and their conversation partners (called the two-pronged approach to intervention) to increase the quality of the interactions and reduce the passivity of the individual who requires AAC (Light, Binger, Agate, & Ramsay, 1999).

Prior to any of the work regarding communication style published in the field of AAC, Fey (1986) published a classification system for children with language disorders that utilized judgments of the child's conversational style as a way to determine the best intervention approach. Two of the categories identified by Fey were the "active" communicator and the "passive" communicator. An "active" communicator was characterized as a) utilizing communicative functions that initiate and regulate the nature of an interaction, b) being relatively successful in communicative interactions despite their limitations to produce language, and c) initiating and extending topics in a conversation. This conversational style, an "active" conversational style, was viewed as more assertive. On the other hand, a "passive" communicator was characterized as a) initiating fewer interactions yet being responsive to communication partners' questions and comments and b) taking on a respondent role in conversation. The "passive" conversational style was viewed as not being as assertive.

Further, Fey (1986) suggested that intervention be designed to target goals according to these conversational styles. He proposed teaching new language forms and teaching the use of acquired language forms for other purposes in conversation to

continue the development of "active" communication. For the "passive" communicator, Fey recommended teaching more assertive conversational acts (which included nonobligatory comments), increasing the child's variety of these assertive acts, and teaching new language forms to contribute to the use of assertive acts. Ultimately, the focus of intervention for children considered "passive" communicators should be to initiate information and interactions instead of taking on the respondent role.

Communicative competence for individuals who require AAC depends not only on demonstrating responsiveness to the partner but also maintaining and extending the conversation's topic (Buzolich, King, and Baroody, 1991; Light et al., 2003). Light et al. (2003) stated that targeting skills such as increasing the participation of the individual who requires AAC through fulfilling obligatory and nonobligatory turns and taking turns reciprocally contributes to active communication. Other skills that have been suggested as important for intervention aimed at developing an active communication style and sociorelational skills are a) demonstrating an interest in others by asking partner-focused questions and b) engaging partners by initiating interactions (Light et al., 2003). As children who require AAC gain communicative competence, peer interactions will become more successful and social closeness will be established (Light, 1989).

Peer Interaction

Limited research is available that investigates interactions between individuals who require AAC and their peers. However, several studies have been completed studying the nature of interactions between an individual who uses natural speech and an individual who requires an AAC system (Buzolich & Lunger, 1995). Findings to date have shown that individuals who required AAC take fewer turns than an individual who

uses natural speech during conversations (Lilienfeld & Alant, 2005; Light, 2003). Further, research has identified that a potential obstacle to peer interaction is the constant presence of an adult with an individual who requires AAC (Giangreco, Edelman, Luiselli, & MacFarland, 1997; Giangreco, Edelman, Broer, & Doyle, 2001).

Evidence does suggest that individuals who require AAC experience difficulty interacting with peers (Buzolich & Lunger, 1995). Three observational studies of peer interactions with individuals who require AAC (Clarke & Kirton, 2003; Romski, Sevcik & Wilkinson, 1994; Wilkinson & Romski, 1995) resulted in similar findings that indicated that fewer turns were taken in interactions by the individual who required AAC compared to the typically developing peer. Romski et al. discovered that during interactions in which an adult and a peer were present, only a small number of messages were communicated to peers: specifically only 4% of the total utterances of the individual who requires AAC. The greater number of utterances were directed to the adults in the environment, such as parents or teachers. Further, Lilienfeld and Alant (2005) stated that:

> Adolescents and young adults have reported feelings of isolation, barriers in getting to know peers, barriers to meeting and making friends, frustrations with respect to initiating and maintaining relationships with peers, and extreme frustration with negative experiences related to attempts at peer acceptance and socialization. (p. 279)

Wolfberg and Schuler (2006) discussed the consequences of decreased peer play in children with autism, and highlighted that not only do the children experience social isolation but, more importantly, "social exclusion imposes a secondary level of disability" (Wolfberg & Schuler, 2006, p. 181). A child's deficits become exacerbated when their interactions with peers are limited. Wolfberg and Schuler (2006) stated that peers offer learning opportunities in developing friendships and social competence that

adults cannot. When a child is part of a "peer culture," their play skills are expanded through use of their imagination to develop play schemes (p. 190). Peer culture does not include adults, although activities may mirror adult tasks. Children with autism are generally excluded from peer and play culture because of the difficulties they experience when interacting with peers. Therefore, it is plausible that children who require AAC, who also experience difficulties interacting with peers, may be excluded from interactions with their peers and subsequently may also be excluded from the "peer culture."

Because of the challenges observed in interactions between individuals who require AAC and their peers, intervention is likely going to be necessary for both the peers and the individuals who require AAC so that both parties can gain the skills needed to make interactions more common and more successful. How the communication partner communicates with the individual who requires AAC has a significant impact on the success or failure of the interaction (Light, 1988; Light et al., 2003; Smith & Connolly, 2008). For this reason, it is vital that children with disabilities who require AAC attain communicative competence and, in particular, social competence to initiate and reciprocate interactions that will allow them to participate in peer and play culture (Whitmire, 2000). Additionally, it is just as important for communication partners (e.g., peers) to receive training to increase the success of these interactions.

Interventions to Increase Social Interactions with Peers

Iacano (2003) suggested that a priority for intervention addressing social communication might be helping individuals who require AAC become more motivated to assert themselves in conversation, thus adopting an "active" communication style.

Buzolich and Lunger (1995) found, however, that despite their efforts to teach conversation regulation strategies to a young woman utilizing AAC, she was content allowing her conversation partner to dominate the interaction, and thus did not utilize the strategies she had learned functionally in interactions. This suggests that intervention needs to begin with consideration of the individual and his or her communication style. Moreover, Schweigert and Rowland (1992) argued that an individual who requires AAC may begin to develop passiveness, even if their natural communication style is assertive, through repeated failures in early communicative attempts. This supports the necessity of early intervention, because as Iacano (2003) stated, "unless appropriate intervention strategies are in place, learned dependency appears to follow learned helplessness, which results from repeated experiences of failure to exert control over the environment" (p. 344). Attempts have also been made in the intervention literature to increase participation through teaching strategies to both individuals who require AAC and their communication partners (e.g., adults and peers) (Buzolich & Lunger, 1995).

Eight studies have been published to date in which individuals who require AAC were trained to use strategies to improve and extend a communicative interaction (Buzolich & Lunger, 1995; Carter & Maxwell, 1998; Hunt, Alwell, Farron-Davis, & Goetz, 1996; Hunt, Alwell, & Goetz, 1988; Hunt, Alwell, & Goetz, 1991; Hunt, Alwell, Goetz, & Sailor, 1990; Light et al., 1999). Participants were specifically taught to use questions to continue a conversation (Buzolich & Lunger, 1995; Carter & Maxwell, 1998; Dattilo & Light, 1993; Light et al., 1999; Lilienfeld & Alant, 2005). All studies indicated positive results and individuals who required AAC increased the number of questions asked throughout a conversation. Varied results were found when teaching

individuals who required AAC to gain attention, request for play with peers, and use regulatory strategies to maintain control and repair communicative breakdowns.

Also reported in the literature are studies in which strategies that have been taught to peers to increase the success of social interactions with children who required AAC. The strategies taught to peers, in the research investigations published to date, were to establish eye contact, get in close proximity to the child who requires AAC, wait for a response, and ask open-ended questions. Results of these investigations were positive and indicated an increase in the number of interactions between typically developing peers and children who required AAC. The number of turns also increased, which resulted in longer interactions. A facilitative context also provided the means for communicative interactions to take place. Through a review of the research literature, it was determined that environments that provide highly structured activities result in more opportunities for peer interaction. Facilitative environments included routines such as interactive games and role-playing activities (McCarthy & Light, 2001).

Research Question

Research in the area of AAC to date has primarily focused on the linguistic and operational domain of communicative competence (Light, 2003). However, individuals who require AAC have been reported to place more value on the "ability to communicate successfully in specific situations, the willingness of others to communicate with them, and the attainment of respect through communication," which are all related to social competence (O'Keefe, Kozak, & Schuller, 2007, p. 90). Hence, it is imperative that more research be conducted to determine effective services to help individuals using AAC gain these social competencies.

Research is available to practicing SLPs regarding different intervention approaches with individuals who require AAC; however, it is uncertain whether SLPs are using evidence-based practice in their clinical settings. The current project used survey research methodology to identify whether there is a connection between research and clinical practice. Whether or not intervention approaches include peers and facilitate the social communication development of children who require AAC was specifically investigated.

The specific research question for the survey investigation was: What are the practices and opinions of speech-language pathologists (SLPs) regarding intervention programming addressing social communication and including peers in intervention for individuals who require AAC? Survey sections to address this question included a) demographics, b) general information regarding AAC, and c) practices regarding addressing social communication and peer interactions in intervention.

CHAPTER TWO

METHOD

Research Design

Survey research methodology utilizing the Tailored Design Method (Dillman, Smyth & Christian, 2009) was employed to collect data concerning speech-language pathologists (SLP) practices and opinions. Surveys are commonly used in the field of communicative disorders to gather information (Schiavetti & Metz, 2006). The survey in this investigation was an online survey, and consisted of an initial e-mail to all of the participants with a cover letter explaining the study, its purpose, and intended participants. This initial e-mail also included a link to the survey to be completed online. A total of five follow-up e-mails were sent to participants who had either not yet accessed and/or completed the survey across a timeline of 10 weeks. Additional e-mails were sent to individual participants who responded via e-mail to the researcher that AAC was not in their scope of practice. These participants were encouraged to complete the survey so their views would be included in the data.

Participants

The national online survey was sent to a random sample of SLPs working in early intervention settings. This population of participants was chosen in order to gain insights into the views and practices of professionals who work with young children between the ages of birth to 5 years old.

Criteria for Participation

SLPs providing services to children between the ages of birth to 5 years old in early intervention were identified as participants for the purpose of this study. Early intervention therapists were targeted as participants because they in particular work with

children during the period of intense language learning (Binger & Light, 2006; Paul, 2007). Further, as stated previously, Binger and Light (2006) reported that 12% of preschoolers receiving special education services require AAC, which accounts for approximately 25% of a preschool SLP's caseload. A higher prevalence of preschoolers requiring AAC was noted in comparison to school-age children requiring AAC. Hence, the age range selected for children in this investigation on the SLP's caseload was birth to 5 years old. Other inclusion criteria included SLPs who are certified by the national organization for speech-language pathologists, the American Speech-Language-Hearing Association (ASHA), and who currently work, or have ever worked, with children who require AAC systems or strategies for communication. Exclusion criteria included SLPs who worked with adults and practiced in rural areas.

Participant Recruitment

Twenty metropolitan cities across the United States were randomly selected to obtain a representative sample of SLPs working with young children. Cities with a population between one to five million as reported in the 2000 U.S. Census were included in the study. Please see Appendix A: List of Metropolitan Cities for a list of the selected cities.

Certified SLPs were identified through ASHA's website (www.asha.org). SLP emails were located under the "Member Center" menu, which contained a Membership Directory Searchable Database. The city and state were entered in the search, as well as "Speech-Language Pathology" as the certification type. Additionally, "Preschool" was selected as the desired work setting.

Materials

Dillman et al. (2009) stated, "surveys have remained a remarkably useful and efficient tool for learning about people's opinions and behaviors. The characteristics of millions of people can be estimated with confidence, then as well as now, by collecting information from only a few hundred or thousand respondents selected randomly from carefully defined populations" (p. 1). Therefore, a survey was developed to gather information from speech-language pathologists on their opinions and practices regarding intervention programming addressing social communication and the inclusion of peers in intervention with individuals who require AAC and to determine the discrepancies between their reported clinical practice and best practice in AAC intervention.

The survey was comprised of three sections, including a) demographics, b) general information regarding AAC, and c) practices regarding addressing social communication and peer interactions in intervention. The demographic section included questions regarding the participant's age, whether they received AAC training in their education program, where they obtained information about AAC, and how many years they had been in clinical practice. Information related to the types of students on the therapist's caseload, types of services provided (e.g., articulation/phonology, language, etc.), and the number of children on the therapist's caseload with complex communication needs (e.g., children who are reported to have 10 words or less, or who communicate primarily via an AAC system) was collected in the general information section. The third section addressed the inclusion of vocabulary in the AAC system to enable a child who requires AAC to initiate and maintain interactions with peers. This last section also gathered information regarding the inclusion of peers in intervention.

Closed-ended questions (e.g., yes/no, ordinal, and nominal questions) were used to collect information from the participants. This specific type of question was utilized to increase response rates from participants (Dillman et al., 2009). Ordinal questions were used in the survey and provide a ranking that analyze levels of frequency, behaviors, and attitudes. An example of an ordinal question on the survey was:

"You feel it is important to include peers in intervention with children who use AAC systems to communicate."

- □ *Strongly Agree*
- □ *Agree*
- □ *Neutral*
- □ *Disagree*
- □ *Strongly Disagree*

Nominal questions were also included in the survey. An example of a nominal question on the survey was:

"Who do passive communicators using the AAC system that you have worked with communicate with on a daily basis?"

- □ *Parents*
- □ *Caregiver*
- □ *Teacher*
- □ *Siblings*
- □ *Peers*
- □ *Other*

Participants were given specific instructions regarding whether they could select more than one answer to a question, or whether they needed to choose the best answer from the list of options. The order of questions varied contingent on how the participant responded. The length of the survey was also dependent on how the questions were answered. For example, the survey ended after the first section concerning demographics for participants who answered "no" to AAC intervention and management being in their scope of practice.

Pretesting was completed by sending the survey to a total of 20 practicing speech-language pathologists and graduate students. Measurement error was reduced by receiving feedback on the survey's content and design. Feedback was used to determine if participants understood what a question was asking, if too much professional terminology was used, or if unclear directions were provided on how to complete the survey or a section of the survey. Revisions were made if more than one SLP raised a concern on a similar matter. Please see Appendix B: Survey Instrument to view the entire survey.

Internal validity was accounted for through piloting the survey, randomly selecting participants, and identifying inclusion and exclusion criteria for participants. The external validity, or generalizability of the results, may need to be interpreted with caution, as SLPs in rural areas and those who work with older children and adults were not targeted.

E-Survey Web Tool

E-Survey Web Tool was used as the medium to distribute the online survey. E-Survey has been available since 2004, and was provided by the University of Utah. This tool was meant to aid faculty and students during the creation and dissemination of web-based questionnaires. Using E-Survey, a survey was developed through use of the questionnaire tool that allowed the inclusion of graphics, text, and different types of questions in the survey. The different question options were free text, matrix, and multiple-choice. Free text provided the capability for participants to comment or respond to open-ended questions. Matrix questions were used for responses using a Likert rating scale. Multiple-choice questions were also utilized in the current survey. E-Survey

allowed participants to select one or more options to answer multiple-choice questions, as well as allowed the author to determine whether questions were required or optional to answer.

Another capability of E-Survey was to create custom distribution lists. One distribution list was developed for the current investigation that included the 20 metropolitan cities. E-Survey also allowed the researcher to control the time frame in which the survey was available for completion, how the survey was distributed, as well as allowed the researcher to view survey responses as they were submitted.

Procedures

The survey was sent via e-mail through E-Survey Web to 424 speech-language pathologists. A distribution list was created using E-Survey to contact participants through the e-mail addresses identified by ASHA's online membership directory. The initial email included a cover letter explaining the purpose of the study with instructions and a secure link to complete the online survey. Five follow-up e-mails were sent with the following schedule: a) the first follow-up e-mail was sent to all of the participants 1 week after the initial contact, b) the second follow-up e-mail was sent only to the participants who had not yet completed or accessed the survey 4 weeks following the first contact, c) the third and fourth follow-up emails were sent to all of the participants who had not yet accessed the survey on-line 6 and 8 weeks following the initial contact, and d) the last follow-up e-mail was sent 10 weeks after the first contact to all participants who had not accessed or completed the survey. All of the follow-up e-mails included a link to the online survey. After the survey was closed, the results were compiled and analyzed.

Measurements

Data Collection

Data were collected and calculated through the E-Survey Web Tool. Ratio level measurement was used to report results. That is, percentages of the responses for the questions were reported and discussed. No further analysis of the results was completed.

Data Reliability

Observer bias, instrument calibration, and test environment were not necessary to account for as a questionnaire was utilized. Pretesting the survey identified any potential problems so modifications were made to ensure data reliability.

Data Analysis

Results of returned surveys were computed using the E-Survey Web Tool. E-Survey provided a detailed report in PDF format that calculated the following: a) total number of invitees, b) invitees completed questionnaire, c) invitees not completed questionnaire, d) invitees accessed questionnaire, e) invitees not accessed questionnaire, and f) invitees accessed but not completed questionnaire.

Included in the detailed report was information related to each individual question. Multiple-choice questions were reported through the number and percentage of responses for each option. Results for matrix questions were reported as the number and percentage of the respondents who answered to each ranking. An Excel spread sheet was provided through the E-Survey Web Tool giving an additional format for the researcher to view the results. Anecdotal report was provided for “other” responses to multiple

choice questions. Descriptive statistics were used to identify the mean, mode, and range of all survey responses, which was computed through the E-Survey Web Tool.

CHAPTER THREE

RESULTS

A total of 424 surveys were distributed and 89 were completed (21% response rate). Following are the results from the three sections on the survey, which included a) demographics, b) general information regarding AAC, and c) practices regarding addressing social communication and peer interactions in intervention.

Demographics

Participants were from metropolitan cities across the United States with 93% (*n*=83) being female and 7% (*n*=6) male. Table 1 shows the number of participants who had licensure in a given state.

Table 1

The Number of Participants with Licensure in a State (68/89 participants responded)

State	Number of Participants with State Licensure
Arizona	7
California	3
Colorado	1
Florida	3
Hawaii	6
Louisiana	3
Massachusetts	1
Minnesota	5
Missouri	2
Nevada	3
New Mexico	1
New Jersey	1
New York	5
North Carolina	5
Ohio	2
Oklahoma	4
Oregon	2
Pennsylvania	3
Tennessee	3
Texas	4
Utah	11
Virginia	1
Washington	3

Note. Nine participants had state licensure in more than one state.

When asked about receipt of training in AAC in their academic program, 48% (*n*=43) of the participants answered "yes" while 52% (*n*=46) answered "no." Of the participants who answered "yes" to receiving AAC training, training was incorporated in their academic program with either a full course (64%, *n*=27), a portion of a course (29%, *n*=12), a seminar (5%, *n*=2), or a summer elective course (2%, *n*=1). There appeared to be no difference between SLPs who had or had not received AAC training in their program and the number of continuing education (CE) hours obtained in AAC. Of the participants who reported completing 1-5 hours of CE in AAC, 29% (*n*=12) reported having academic training in AAC and 26% (*n*=12) reported having no prior training in AAC. Of those that reported completing 6-10 hours of CE in AAC, 19% (*n*=8) reported having academic training in AAC and 20% (*n*=9) reported having no prior training in AAC. For those who reported completing 11-15 hours of CE in AAC, 7% (*n*=3) reported having academic training in AAC and 9% (*n*=4) reported having no prior training in AAC. For those who reported completing 16-20 hours of CE in AAC, 5% (*n*=2) reported having academic training in AAC and 15% (*n*=7) reported having no prior training in AAC, and finally, of those who reported 20 or more hours of CE in AAC, 29% (*n*=12) reported having academic training in AAC and 24% (*n*=11) reported having no prior training in AAC. Participants further reported that CE hours in AAC were obtained most frequently through conferences (66%, *n*=59) and in-services (64%, *n*=57) (note that participants could select multiple options to answer).

The number of years in clinical practice ranged from 2 to 30+ and the number of years working with children under the age of 5 ranged from no years to 30+.

Table 2

Participant Demographics

Work Settings with Children under Five	Percentage (Number of Participants)
Public Schools	50% (44)
Multiple Work Settings	14% (13)
Early Intervention	13% (11)
Private Clinic	9% (8)
No Location (do not work with children under 5)	9% (8)
Charter School	3% (3)
Medical Setting	1% (1)

Number of Years of ASHA Membership	Percentage (Number of Participants)
1-5 years	11% (9)
6-10 years	27% (22)
11-15 years	11% (9)
16-20 years	11% (9)
Over 20 years	40% (32)

Member of a Special Interest Division (SID)	Percentage (Number of Participants)
Yes	17% (14)
No	83% (67)

SID Memberships
Language Learning and Education
Fluency and Fluency Disorders
Augmentative and Alternative Communication
Swallowing and Swallowing Disorders (Dysphagia)
Communication Disorders and Sciences in Culturally and Linguistically Diverse (CLD) Populations
School-Based Issues

Note. No percentages or number of participants were obtained for individual SID Memberships.

Table 2 provides the percentage and number of participants who responded to questions pertaining to demographic information in the survey.

General Information Regarding AAC Intervention

When asked if AAC intervention and management for children birth to 5 was within the scope of practice of an SLP, 74% (*n*=60) of the participants replied "yes" and 26% (*n*=21) replied "no." Table 3 provides more information regarding why some participants felt AAC intervention and management was not within their scope of practice (note that participants could select multiple options to answer this question).

Further, of those who responded that AAC was within the SLP's scope of practice, 95% (*n*=57) indicated that they provided services to children utilizing AAC. The survey ended after the demographic and general information sections for participants who responded negatively to questions related to providing services to children utilizing AAC, working with children 5 years and younger, and/or AAC being within their scope of practice. The total number of participants for whom the survey terminated at this point was 32 (36%) of the participants.

Participants who were allowed to continue with the survey were subsequently asked about their opinions on the adequacy of their AAC intervention knowledge base. They were specifically asked to reflect on if their knowledge was adequate for making recommendations and for the provision of AAC intervention services. Of the 57 participants who responded, 79% (*n*=45) answered "yes" while 21% (*n*=12) answered "no." When asked about the sources of information used for acquiring knowledge in AAC service provision, the top resource for receiving information regarding AAC intervention and management was other professionals (93%, *n*=53).

Participants were asked about the number of children that were on, or have ever been on, their caseload who required AAC. The number of children reported to be utilizing AAC on the SLPs' caseload ranged from none to 10. A participant needed a minimum of one child utilizing AAC on their caseload (either at the current time or at some point in the past) to continue with the survey; therefore, the survey ended at this point for the 4% (*n*=2) of the SLPs who had never worked with a child who required AAC for communication.

Table 3

Opinions as to Why AAC is not Within an SLP's Scope of Practice

Option	Percentage and Number of Participants
SLPs are not trained in AAC	5% (1)
Other professionals are more highly qualified	0% (0)
AAC intervention is not "speech" intervention	0% (0)
I am not personally comfortable with service provision in this area	52% (11)
Other	48% (10)

Note. "Other" reasons given for why AAC is not within an SLP's scope of practice included a) "I can support it in conjunction with our specialized department, not independently."; b) "I would like more training."; c) "The electronic devices are hard to learn in a limited amount of time. There are certain therapists in the school system that will help but of course under staffed."; d) "Do not serve that age group."; e) "I have not had any student in this age group who have needed this type of service."; f) "Lack of training and I don't work with that population on a regular basis."; and g) "I have some training, but would not be comfortable without mentoring by someone who has used AAC more than I."

Table 4 provides a summary of the data related to numbers of children who required AAC reported to be on the participants' caseloads.

The SLPs reported that children using AAC on their caseloads could be classified under medical diagnoses such as autism spectrum disorders (83%, *n*=45), Downs Syndrome (44%, *n*=24), developmental apraxia of speech (43%, *n*=23), intellectual disability (37%, *n*=20), cerebral palsy (31%, *n*=17), hearing impairment (22%, *n*=12), traumatic brain injury (TBI; 11%, *n*=6), as well as other, unspecified, medical diagnoses (24%, *n*=13) (note that participants could select more than one option to answer the question).

The AAC systems the SLPs reported using with young children included unaided systems (e.g., gestures, sign language, and finger spelling; 95%, *n*=54), low technology aided systems (e.g., no computer elements such as a communication board/book, eye-gaze, Picture Exchange Communication System, PECS; 98%, *n*=56), high technology aided systems (e.g., computer-based with speech output; 75%, *n*=43), and other (2%, *n*=1). The numbers reported above may include multiple AAC systems for each child

Table 4

The Number of Children Utilizing AAC on the Participants' Caseload

Number of Children	Percentage (Number of Participants)
None	4% (2)
1-3	12% (7)
4-6	19% (11)
7-9	14% (8)
10 or more	51% (29)

who required AAC as multimodal communication is common practice in AAC intervention and participants were allowed to select more than one answer option for this question. For those children utilizing a high technology aided system as their primary mode of communication 25% (*n*=14) used a communication board, 23% (*n*=13) used the PECS, 16% (*n*=9) used gestures, 14% (*n*=8) used sign language, 11% (*n*=6) used vocalizations/speech, and 11% (*n*=6) used "other," unspecified, modes for back-up methods of communication. One of the participants reported that no back-up methods were used, which is unusual, given that most individuals who require AAC regularly use multiple modalities to communicate to increase the rate and efficiency of communication.

When asked to rank communicative functions by their priority for inclusion in AAC systems for children, "communicating wants and needs" was ranked by the participants as the most important communicative purpose. Other communicative purposes were prioritized as follows: a) engaging in play, b) responding to questions, c) asking questions, d) telling someone about his/her day, and e) being polite. The ability to build grammatically correct sentences with the device was ranked as the lowest priority by the participants collectively.

When asked about the turn-taking patterns of the children who required AAC, the participants reported "age" as the top factor to influence the number of turns a child

utilizing an AAC system would take in a conversation. Of the other factors available as choices, the SLPs reported, from most influential to least influential, that a) attention, b) communicative intent, c) accessibility of AAC system and interest level, d) interest level in topic, e) knowledge base, f) persistence of communication partner, g) conversational style, and h) "other" contributed to the number of turns a child utilizing AAC took in a conversation.

Practices Regarding Addressing Social Communication and Peer Interactions in Intervention

In addition to thinking about the turn taking patterns of the children who required AAC, the participants were asked to identify the children who required AAC as either an "active" or "passive" communicator. Marc Fey (1986) classified children according to their conversational style as a way to help determine the best approach to intervention. According to the definitions provided by Fey, children who are characterized as "active" communicators utilize communicative functions to initiate and regulate the nature of an interaction despite their limitations in expressive language. They are also relatively successful in communicative interactions and are more assertive using higher rates of initiating and extending a topic in conversations. Children who are characterized as "passive" communicators initiate fewer interactions but respond to their communicative partner's questions and comments. They are not assertive and take on a respondent role in conversation (Fey, 1986). A complete table of the results regarding SLP practice with children utilizing AAC considered "passive" or "active" communicators is included in Appendix D: Survey Results. Some of the information provided by the participants

related to the communication styles of children who require AAC is presented in more detail below.

Since the perceived communication style of a child who requires AAC may change the SLP's intervention approach, participants were asked to identify the number of children they had worked with who required AAC that they would classify as "passive" or "active" communicators. When asked to report the number of children they were currently or had ever worked with who they would classify as "passive" communicators, 4% of the participants (*n*=2) reported no children, 28% of the participants (*n*=16) reported 1-3 children, 25% of the participants (*n*=14) reported 4-6 children, 21% of the participants (*n*=12) reported 7-9 children, and 23% of the participants (*n*=13) reported 10 or more children. Participants were also asked to report the number of children they had worked with that they would classify as "active" communicators. The findings were as follows: a) 20% of the participants (*n*=11) reported no children, b) 44% of the participants (*n*=24) reported 1-3 children, c) 13% of the participants (*n*=6) reported 4-6 children, d) 11% of the participants (*n*=5) reported 7-9 children, and e) 17% of the participants (*n*=8) reported more than 10 children that they had worked with who they would classify as "active" communicators. Further, 96% (*n*=53) reported providing intervention and/or other supports to promote more "active" communication from children classified as "passive" communicators. These SLPs reported that the specific intervention strategies utilized to promote more "active" communication included a) acknowledging their communication attempts (98%; *n*=52), b) setting up communicative temptations (89%, *n*=47), c) prompting the children to communicate with others (92%, *n*=49), d) using activities that are meaningful and

motivating (100%, *n*=53), e) modeling use of the children's AAC system to initiate or ask a question (87%, *n*=46), f) expecting the children to initiate by clearly marking opportunities in communicative interactions (51%, *n*=27), g) ensuring that vocabulary needed to be an active communicator is available (87%, *n*=46), and/or h) "other," unspecified, strategies (6%, *n*=3) (note that participants could select more than one option to answer this question).

Furthermore, participants who classified children that they had worked with as "active" communicators were asked about the specific strategies they used to support the continual development of "active" communication. Participants reported use of strategies such as a) acknowledging all communication attempts from the children who are "active" communicators (93%; *n*=43), b) setting up communicative temptations (80%; *n*=37), c) teaching these children new language forms to use in communicative interactions (87%, *n*=40), d) ensuring that vocabulary needed to be an active communicator is available to these children utilizing AAC (96%, *n*=44), and/or e) "other," unspecified, strategies (4%, *n*=2) (here again, participants could select more than one option to answer).

Because the original definitions of "active" and "passive" communicator specify differences in the types of communicative acts performed, participants were asked about the types of communication acts performed by "passive" and "active" communicators that they had worked with. When asked about the types of communication acts performed by children they would classify as "passive" communicators, participants responded a) not applicable (2%; *n*=1), b) responses (72%; *n*=38), c) initiations (25%, *n*=13), d) comments (13%; *n*=7), e) protests (49%; *n*=26), f) questions (13%; *n*=7), g) requests (79%; *n*=42), and/or h) "other," unspecified, communication acts (6%; *n*=3) (participants

could select more than one option to answer this question). In comparison, participants replied that the types of communication acts performed by children utilizing AAC who they would classify as "active" communicators as a) not applicable (0%; *n*=0), b) responses 83%, *n*=38), c) initiations (89%; *n*=41), d) comments (87%; *n*=40), e) protests (85%; *n*=39), f) questions (74%, *n*=34), g) requests (91%; *n*=42), and h) "other," unspecified, communication acts (0%; *n*=0) (participants could select more than one option to answer this question). Table 5 presents the results regarding communication acts performed by children utilizing AAC classified as "passive" or "active" communicators.

After identifying the types of communication acts performed by children who were classified as "passive" or "active" communicators, participants were asked about the type of vocabulary available on the children's AAC system for various communicative acts. When asked the percentage of vocabulary available on the children's AAC system for comments, participants answered that for "passive" communicators, a) less than 25%

Table 5

Types of Communication Acts Performed by Children Utilizing AAC Classified as "Passive" or "Active" Communicators

Types of communication acts performed by a PASSIVE communicator	Percentage/No.	Types of communication acts performed by an ACTIVE communicator	Percentage/No.
NA	2% (1)	NA	0% (0)
Responses	72% (38)	Responses	83% (38)
Initiations	25% (13)	Initiations	89% (41)
Comments	13% (7)	Comments	87% (40)
Protests	49% (26)	Protests	85% (39)
Questions	13% (7)	Questions	74% (34)
Requests	79% (42)	Requests	91% (42)
Other	6% (3)	Other	0% (0)

Note. Participants could select more than one option when answering for this question.

(66%; *n*=35), b) between 26-49% (32%; *n*=17), c) between 50-75% (2%; *n*=1), d) over 75% (0%; *n*=0) of the vocabulary could be used for commenting. For children classified as "active" communicators, 30% (*n*=14) responded to having less than 25% of vocabulary available for comments, 65% (*n*=30) responded to having between 26-49% of the vocabulary available for comments, 4% (*n*=2) responded to having between 50-75% of the vocabulary available for comments, and 0% (*n*=0) responded to having over 75% of the vocabulary available for comments. Table 6 presents the results regarding the percentage of vocabulary available on an AAC system for commenting for the children classified as "passive" or "active" communicators.

When asked the percentage of vocabulary available on the children's AAC system for asking partner-focused questions, 33% (*n*=18) participants responded that for children classified as "passive" communicators, vocabulary was available for asking partner-focused questions, while 67% (*n*=37) responded that vocabulary for asking partner-focused questions was not available to "passive" communicators. When asked for reasons why vocabulary was not available to children considered "passive" communicators for asking partner-focused questions, 5% of the participants (*n*=2) answered that it required too much time, 30% of the participants (*n*=11) answered that available vocabulary for asking partner-focused questions was not a primary concern for these children, 14% of the participants (*n*=5) answered that the nature of communicative interactions is too difficult to predict, 76% of the participants (*n*=29) answered that asking partner-focused questions was too difficult for these children, and 30% of the participants (*n*=11) answered "other," unspecified, reasons.

Table 6

Percentage of Vocabulary Available for Comments

Percentage of vocabulary for comments for PASSIVE communicators	Percentage/No.	Percentage of vocabulary for comments for ACTIVE communicators	Percentage/No.
Less than 25%	66% (35)	Less than 25%	30% (14)
Between 26-49%	32% (17)	Between 26-49%	65% (30)
Between 50-75%	2% (1)	Between 50-75%	4% (2)
Over 75%	0% (0)	Over 75%	0% (0)

When asked if vocabulary was available to the children considered "active" communicators for asking partner-focused questions, 63% of the participants (*n*= 29) responded "yes" and 37% of the participants (*n*=17) responded "no." Participants who answered "no" to vocabulary being available for asking partner-focused questions provided the following reasons: a) it requires too much time (6%; *n*=1), b) asking partner-focused questions is not a primary concern for children characterized as "active" communicators (35%; *n*=6), c) that the nature of communicative interactions is too difficult to predict (24%; *n*=4), d) asking partner-focused questions is too difficult for these children (53%; *n*=9), and e) "other," unspecified, reasons (24%; *n*=4). Table 7 presents the results related to the vocabulary available on their AAC system for asking partner-focused questions for children characterized as "passive" or "active" communicators.

Participants were then asked if vocabulary was available to children considered "passive" or "active" communicators for making comments about play (other than requesting a specific toy/activity). When asked about children who were considered "passive" communicators and if vocabulary was available for comments about play,

Table 7

Vocabulary Available for Asking Partner-Focused Questions

Available vocabulary that enables PASSIVE communicators to ask partner-focused questions	Percentage/No.	Available vocabulary that enables ACTIVE communicators to ask partner-focused questions	Percentage/No.
Yes	33% (18)	Yes	63% (29)
No	67% (37)	No	37% (17)
Reasons for why vocabulary is not available	Percentage/No.	Reasons for why vocabulary is not available	Percentage/No.
Requires too much time	5% (2)	Requires too much time	6% (1)
Not a primary concern	30% (11)	Not a primary concern	35% (6)
Cannot predict the nature of interactions	14% (5)	Cannot predict the nature of interactions	24% (4)
Too difficult for these children	76% (29)	Too difficult for these children	53% (9)
Other	30% (11)	Other	24% (4)

Note. Participants could select more than one option when answering reasons for why the vocabulary is not available.

73% of the participants (*n*=40) answered positively (that vocabulary for this purpose was available) and 27% of the participants (*n*=15) answered negatively. Participants who answered negatively gave the following reasons for why this vocabulary was not available to "passive" communicators: a) requires too much time (0%; *n*=0), b) not a primary concern for these children (7%; *n*=1), c) cannot predict the nature of communicative interactions (20%; *n*=3), d) too difficult for these children (53%; *n*=8), and/or e) "other," unspecified, reasons (33%; *n*=5).

When asked if this type of vocabulary was available on the AAC systems of children considered "active" communicators, 98% of the participants (*n*=45) answered "yes" and 2% of the participants (*n*=1) answered "no." For the participant who answered "no," indicating that vocabulary was not available for making comments about play, the reason given was that it was too difficult for this child (100%; *n*=1). Table 8 presents the

Table 8

Vocabulary Available for Making Comments About Play

Vocabulary available for making comments about play other than requesting a specific activity for PASSIVE communicators	Percentage/No.	Vocabulary available for making comments about play other than requesting a specific activity for ACTIVE communicators	Percentage/No.
Yes	73% (40)	Yes	98% (45)
No	27% (15)	No	2% (1)
Reasons as to why no vocabulary is available for making comments about play	Percentage/No.	Reasons as to why no vocabulary is available for making comments about play	Percentage/No.
Requires too much time	0% (0)	Requires too much time	0% (0)
Not a primary concern	7% (1)	Not a primary concern	0% (0)
Cannot predict the nature of interactions	20% (3)	Cannot predict the nature of interactions	0% (0)
Too difficult for these children	53% (8)	Too difficult for these children	100% (1)
Other	33% (5)	Other	0% (0)

Note. Participants could select more than one option when answering reasons for why the vocabulary is not available.

results related to participants' responses about vocabulary being available on an AAC system for children considered "passive" and "active" communicators for making comments about play other than requesting a specific toy/activity.

When asked if vocabulary was available in the AAC systems of children considered "passive" communicators to initiate play interactions, 80% of the participants (*n*=44) answered "yes" and 20% of the participants (*n*=11) answered "no."Participants who answered "no" to this question gave the following reasons for why this vocabulary was not available for these children: a) initiating play interactions is not a primary concern for the child (45%; *n*=5), b) it is too difficult for these children to initiate play interactions (64%; *n*=7), and/or c) "other," unspecified, reasons (18%; *n*=2). Participants were subsequently asked if vocabulary was available to initiate play interactions on the

Table 9

Vocabulary Available to Initiate Play Interactions

Vocabulary available to initiate interactions for the PASSIVE communicator	Percentage/No.	Vocabulary available to initiate play interactions for the ACTIVE communicator	Percentage/No.
Yes	80% (44)	Yes	100% (40)
No	20% (11)	No	0% (0)
Reasons as to why no vocabulary is available to initiate play interactions	Percentage/No.	Reasons as to why no vocabulary is available to initiate play interactions	Percentage/No.
Requires too much time	0% (0)	Requires too much time	0% (0)
Not a primary concern	45% (5)	Not a primary concern	0% (0)
Cannot predict the nature of interactions	0% (0)	Cannot predict the nature of interactions	0% (0)
Too difficult for these children	64% (7)	Too difficult for these children	0% (0)
Other	18% (2)	Other	0% (0)

Note. Participants could select more than one option when answering reasons for why the vocabulary is not available.

AAC systems of the children considered to be "active" communicators. The participants all responded to "yes" (100%; *n*=40) to this question. Table 9 presents the results related to vocabulary being available on an AAC system for children considered "passive" and "active" communicators for initiating play interactions.

After completing questions related to the vocabulary available to the children who required AAC systems that they had worked with, the participants were asked a series of questions about their observations of children classified as "passive" or "active" communicators who required AAC. First, they were asked if they had observed the children who required AAC engaging in dramatic play. When specifically asked about children classified as "passive" communicators, 44% of the participants (*n*=24) answered "yes" and 56% of the participants (*n*=31) answered "no." The participants further responded that possible reasons for why "passive" communicators do not engage in

dramatic play were a) physical limitations (26%; *n*=8), b) lack of appropriate play skills (71%; *n*=22), c) lack of interest in the toys (45%; *n*=14), and/or d) "other," unspecified, reasons (23%; *n*=7).

When asked about children classified as "active" communicators, however, 87% of the participants (*n*=40) answered "yes" and 13% of the participants (*n*=6) answered "no." For those participants who answered "no" to "active" communicators engaging in dramatic play, the following reasons were offered to explain why: a) physical limitations (33%; *n*=5), b) lack of appropriate play skills (83%; *n*=5), c) lack of interest in the toys (50%; *n*=3), d) these children were pulled out for therapy during dramatic play opportunities (17%; *n*=1), and/or e) "other," unspecified, reasons (17%; *n*=1). Table 10 presents the results related to the number and percentage of responses from participants regarding observations of children utilizing AAC, who are considered "passive" or "active" communicators, engagement in dramatic play.

Table 10

Participants' Observations of Children Utilizing AAC Engagement in Dramatic Play

Do PASSIVE communicators engage in dramatic play	Percentage/No.	Do ACTIVE communicators engage in dramatic play	Percentage/No.
Yes	44% (24)	Yes	87% (40)
No	56% (31)	No	13% (6)
Possible reasons passive communicators do not engage in dramatic play	Percentage/No.	Possible reasons active communicators do not engage in dramatic play	Percentage/No.
Physical limitations	26% (8)	Physical limitations	33% (5)
Do not have appropriate play skills	71% (22)	Do not have appropriate play skills	83% (5)
Not interested in the toys	45% (14)	Not interested in the toys	50% (3)
Pulled out for therapy	0% (0)	Pulled out for therapy	17% (1)
Other	23% (7)	Other	17% (1)

Note. Participants could select more than one option when answering this question.

Second, the participants were asked if children characterized as "passive" communicators watch their peers play; 64% of the participants (*n*=35) answered "yes" and 36% of the participants (*n*=20) answered "no." On the other hand, when the participants were then asked if children characterized as "active" communicators watched peers play, 100% (*n*=45) answered "yes."

Third, the participants were asked about their observations related to the types of play children utilizing AAC, characterized as "passive" or "active" communicators, engaged in. When asked specifically about "passive" communicators, 16% of the participants (*n*=9) responded "pretend play," 45% of the participants (*n*=25) responded "constructive play," 76% of the participants (*n*=42) responded "sensorimotor play," 69% of the participants (*n*=38) responded "parallel play," 85% of the participants (*n*=47) responded "solitary play," 9% of the participants (*n*=5) responded "cooperative play," and 7% of the participants (*n*=4) responded to "other," unspecified, types of play. With regard to "active" communicators, participants responded to the types of play engaged in as follows (note that participants could select more than one answer): a) "pretend play" (83%; *n*=38), b) "constructive play" (87%; *n*=39), c) "sensorimotor play" (53%; *n*=24), d) "parallel play" (76%; *n*=35), e) "solitary play" (67%; *n*=31), f) "cooperative play" (84%, *n*=38), and g) "other," unspecified, types of play (4%; *n*=2). Table 11 presents the results related to the number and percentage of responses from participants regarding observations of children utilizing AAC, who are considered "passive" or "active" communicators, watching of peer play as well as the types of play these children engage in.

Table 11

Children Utilizing AAC and a) if They Watched Peers Play and b) Types of Play They Engaged in

PASSIVE communicators watch peers play	Percentage/No.	ACTIVE communicators watch peers play	Percentage/No.
Yes	64% (35)	Yes	100% (45)
No	36% (20)	No	0% (0)
Types of play PASSIVE communicators engage in	Percentage/No.	Types of play ACTIVE communicators engage in	Percentage/No.
Pretend	16% (9)	Pretend	83% (38)
Constructive	45% (25)	Constructive	87% (39)
Sensorimotor	76% (42)	Sensorimotor	53% (24)
Parallel Play	69% (38)	Parallel Play	76% (35)
Solitary Play	85% (47)	Solitary Play	67% (31)
Cooperative Play	9% (5)	Cooperative Play	84% (38)
Do not use toys appropriately	7% (4)	Do not use toys appropriately	7% (3)
Other	7% (4)	Other	4% (2)

Note. Participants could select more than one option when answering for this question.

When asked if children characterized as "passive" communicators attempt to interact with their peers, 49% of the participants (*n*=27) answered "yes" and 51% of the participants (*n*=28) answered "no." Further, participants who answered positively stated that "passive" communicators attempt to interact with peers by a) watching their peers (85%; *n*=23), b) initiating an interaction inappropriately (48%; *n*=13), c) laughing at their peer's actions (63%, *n*=17), d) establishing eye contact (41%, *n*=11), and/or e) "other," unspecified, reasons (15%; *n*=4). Additionally, participants were asked if children characterized as "active" communicators attempted to interact with their peers and 100% of the participants (*n*=45) answered "yes." The participants then reported that "active" communicators attempt to interact with their peers by a) watching their peers (91%; *n*=39), b) initiating an interaction inappropriately (56%; *n*=24), c) laughing at their peer's actions (81%, *n*=35), d) establishing eye contact (74%, *n*=32), and/or e) "other," unspecified, reasons (26%; *n*=11). Table 12 presents the results related to the number and

Table 12

Attempted Peer Interactions and How Peer Interactions are Attempted

PASSIVE communicators attempt to interact with peers	Percentage/No.	ACTIVE communicators attempt to interact with peers	Percentage/No.
Yes	49% (27)	Yes	100% (45)
No	51% (28)	No	0% (0)
How they attempt to interact with peers	Percentage/No.	How they attempt to interact with peers	Percentage/No.
Watch peers	85% (23)	Watch peers	91% (39)
Initiate an interaction inappropriately	48% (13)	Initiate an interaction inappropriately	56% (24)
Never observed	4% (1)	Never observed	0% (0)
Laugh at peer's actions	63% (17)	Laugh at peer's actions	81% (35)
Establish eye contact	41% (11)	Establish eye contact	74% (32)
Other	15% (4)	Other	26% (11)

percentage of responses from participants regarding observations of children utilizing AAC, who are considered "passive" or "active" communicators, attempting to interact with peers and, if so, how they attempted these interactions.

The next section of questions asked the participants to supply information about the communicative opportunities provided to the children who required AAC that they had worked with. The first question in this series asked the participants about the types of questions family, school staff, and peers asked the children utilizing AAC, characterized as "passive" or "active" communicators. When asked about "passive" communicators, 42% of the participants (*n*=23) responded that they are asked guided questions, 64% of the participants (*n*=35) responded factual questions, 93% of the participants (*n*=51) indicated preference yes/no questions, 60% of the participants (*n*=33) stated partner-focused questions, 31% of the participants (*n*=17) responded follow-up questions, and 4% of the participants (*n*=2) stated that they are asked "other," unspecified, questions. Subsequently, participants were asked the types of questions family, school staff, and

peers asked children utilizing AAC characterized as "active" communicators. The types of questions the participants indicated were asked to "active" communicators were a) guided questions (53%; *n*=24), b) factual questions (83%; *n*=38), c) preference yes/no questions (96%; *n*=43), d) partner-focused questions (89%; *n*=41), and e) follow-up questions (69%; *n*=31). Table 13 presents the results related to the types of questions asked to children utilizing AAC characterized as "passive" or "active" communicators.

The participants were then asked about the number of turns children utilizing AAC characterized as "passive" or "active" communicators generally took in conversations. When asked about children characterized as "passive" communicators, 47% of the participants (*n*=26) answered 1 turn, 38% of the participants (*n*=21) answered 2 turns, and 13% of the participants (*n*=6) answered 3 turns. Only 4% of the participants (*n*=2) answered that these children generally took more than 3 turns in a conversation. On the other hand, participants responded that children characterized as "active" communicators generally took a) 1 turn (7%; *n*=3), b) 2 turns (33%; *n*=15), c) 3 turns

Table 13

The Types of Questions Asked to Passive and Active Communicators

The types of questions asked to PASSIVE communicators utilizing AAC	Percentage/No.	The types of questions asked to ACTIVE communicators utilizing AAC	Percentage/No.
Guided questions	42% (23)	Guided questions	53% (24)
Factual questions	64% (35)	Factual questions	83% (38)
Preference yes/no questions	93% (51)	Preference yes/no questions	96% (43)
Partner-focused questions	60% (33)	Partner-focused questions	89% (41)
Follow-up questions	31% (17)	Follow-up questions	69% (31)
Other	4% (2)	Other	0% (0)

Note. Participants could select more than one option when answering for this question.

(30%; *n*=14), and d) more than 3 turns in a conversation (31%; *n*=14). Table 14 shows the data related to the number of turns children utilizing AAC considered a "passive" or "active" communicator generally took in a conversation.

Peer Interactions

A portion of the third section of the survey included questions that addressed whether SLPs included peers in intervention sessions and/or taught peers strategies to facilitate interactions with children utilizing AAC systems. Results from the survey indicated that 79% (*n*=44) of participants included peers in intervention sessions where 21% (*n*=12) of the participants stated that they did not. Of the participants who reported they did include peers in intervention sessions, 19% used peers as a reward system (*n*=9), 83% used peers as peer models (*n*=39), 81% reported including peers as interaction partners (*n*=38), 23% assigned typically developing peers to be a target child's "buddy" (*n*=11), 45% stated that peers were included with children who require AAC through inclusion in the same play area or play group (*n*=21), and 6% reported "other," unspecified, ways peers were included in intervention sessions (*n*=3).

For those participants who stated that they did not currently include peers in AAC intervention sessions (21%, *n*=12), peers were not included for the following reasons:

Table 14

The Number of Turns Children Utilizing AAC Take in a Conversation

Number of turns taken by a PASSIVE communicator in a conversation	Percentage/No.	Number of turns taken by an ACTIVE communicator in a conversation	Percentage/No.
1 turn	47% (26)	1 turn	7% (3)
2 turns	38% (21)	2 turns	33% (15)
3 turns	13% (6)	3 turns	30% (14)
More than 3 turns	4% (2)	More than 3 turns	31% (14)

a) the participant was targeting other areas of language (50%, *n*=5), b) the participant did not have access to peers (40%, *n*=4), c) the participant felt it was not appropriate to include peers in intervention (20%, *n*=2), d) the participant thought it took too much time (10%, *n*=1), e) the participant felt that using language to interact with peers was not an area of concern (10%, *n*=1), and/or f) "other," unspecified, reasons (40%, *n*=4). The survey ended after this series of questions for participants who did not include peers in intervention with children who require AAC. Forty-five participants continued with the survey after this point.

The participants who continued with the survey were then asked about their level of agreement with the statement that it is important to include peers in intervention sessions with children utilizing AAC systems; 65% (*n*=37) of participants reported strong agreement with that statement, 30% (*n*=17) reported agreement, 5% (*n*=3) felt neutral about the importance of that statement, and 0% (*n*=0) reported disagreement or strong disagreement with that statement. It was reported that 79% (*n*=44) of the participants' currently include peers in AAC intervention sessions.

For participants who reported including peers in interventions sessions, peers were included in intervention sessions on a weekly basis by 51% (*n*=23), on a daily basis by 47% (*n*=21), on occasion by 11% (*n*=5), on a monthly basis by 2% (*n*=1), and as a reward by 2% (*n*=1). Further, the SLPs stated that when peers were included in AAC intervention sessions, they were involved in the sessions in the following ways: a) by being a peer model (89%; *n*=40), b) by being an interaction partner (84%; *n*=38), c) by being assigned to the same play area or group (42%; *n*=19), d) by being the target children's assigned "buddy" (13%; *n*=6), and/or e) in some "other" capacity (7%; *n*=3).

The SLPs reported that training was provided for the peers either a) during the intervention session via prompting (64%; *n*=29), b) prior to the intervention session (16%; *n*=7), c) that no training was necessary (16%; *n*=7), or d) "other" types of training (4%; *n*=2). It was stated that the peers were taught several specific strategies, if training was provided. These strategies included a) allowing the child who used AAC more time to respond (56%; *n*=25), b) asking the child who used AAC questions such as what they want to play (51%; *n*=23), c) being in close proximity to the child who used AAC (40%; *n*=18), and/or d) "other" strategies (7%; *n*=3).

When asked about the methods used for facilitating communicative interactions between children utilizing AAC and their peers, 84% of the SLPs reported acting as the mediator and redirecting requests and comments to the peers (*n*=38), 49% reported giving the peer a highly motivating item to facilitate a request from the children who used AAC (*n*=22), 11% reported asking the peer to sabotage a classroom or social routine (*n*=5), or 9% reported "other" methods (*n*=4). The SLPs stated that the most common materials and activities used to elicit interactions between peers and children who required AAC were as follows: a) motivating toys or activities (98%; *n*=44), b) easily accessible toys or activities (71%; *n*=32), c) snack (69%; *n*=31), d) greetings (58%; *n*=26), or e) "other" materials and activities (2%; *n*=1).

Participants were also asked about their observations of the opportunities present for interactions between children utilizing an AAC system and their peers. The majority of the participants, 78% (*n*=35), reported that the children who required AAC had opportunities to interact with their peers while 2% (*n*=1) stated they did not, and the remaining 20% (*n*=9) did not know. When the SLPs were asked if they ever observed

typically developing peers communicating with children utilizing AAC, 82% (*n*=37) responded "yes" and 18% (*n*=8) responded "no." Regarding the frequency of peer interactions in the natural environment, 33% of the SLPs (*n*=15) reported that interactions occurred "sometimes," while 22% (*n*=10) responded that the frequency was "variable." Further, 18% of the SLPs (*n*=8) reported the frequency to be "rarely" and 13% (*n*=6) responded that the frequency was "often" and "very often." The SLPs further reported that typically developing peers communicated more with children who used AAC characterized as "active" communicators (97%, *n*=34) than children characterized as "passive" communicators (3%, *n*=1). Finally, 77% of the participants (*n*=30) reported that during interactions with children who required AAC, the typically developing peers took on the role of being the assertive communication partner, 26% of the participants (*n*=10) reported equal participation in the interaction, 26% of the participants (*n*=10) reported that the typically developing peers took on the role of being the passive communication partner, and 10% of the participants (*n*=4) reported "other" roles typically developing peers adopted when interacting with children utilizing AAC.

The majority of the participants (88%, *n*=7) did report a difference in how peers interact with other typically developing children compared to how they interact with children who utilized AAC; however, 12% of the participants (*n*=1) noted no difference. When a difference in interaction patterns was reported, 85% of the participants (*n*=33) stated that peers treated the children utilizing AAC as if they were younger, 67% of the participants (*n*=26) responded that peers communicated using a third party such as an adult in the environment, 51% of the participants (*n*=20) responded that the typically

developing peers ignored the children utilizing AAC, and 10% of the participants reported “other” responses.

CHAPTER FOUR

DISCUSSION

Discussion

The current investigation utilized survey research methodology to explore the opinions and practices of SLPs regarding intervention programming for young children who require AAC and to determine the discrepancies between best practice and clinical practice in AAC intervention. The survey was comprised of three sections, including a) demographics, b) general information regarding AAC, and c) practices regarding addressing social communication and peer interactions in intervention. Based on the opinions and experiences reported by the SLPs, planning and implementing intervention for young children who require AAC is complicated for several reasons. First, approximately one-quarter (26%; *n*=21) of the participants who received and returned the survey reported feeling that AAC was not within their scope of practice. Second, the SLPs reported that many of the children who required AAC on their caseload were "passive" communicators. Third, the SLPs reported many differences in their opinions and practices for children who required AAC who they considered "active" communicators compared to those children who required AAC who they considered "passive" communicators.

Scope of Practice

One-quarter of the participants (26%; *n*=21) responded that they felt that AAC was not within their scope of practice as SLPs. Reasons provided for this opinion included a) not feeling comfortable with service provision in this area, b) needing support from a specialist to provide this type of service, and c) lack of training. The participants' responses did suggest, however, openness to receiving more training and education related to AAC intervention and service provision. Further, as can be determined based

on the responses provided above, the reasons given for why these SLPs considered AAC to be outside their scope of practice appeared to be reflections on feelings of discomfort with AAC service provision rather than compelling reasons for AAC being outside the scope of an SLP's practice. Compelling reasons for AAC not being within their scope of practice include SLPs who work with individuals with dysphagia (swallowing difficulties).

This finding, that some of the SLPs do not provide AAC services to children birth to 5 years of age, is alarming as Binger and Light (2006) stated that approximately 11-12% of preschool-aged children with special needs require the use of an AAC system for communication. These data further indicate the need for additional and ongoing training and education for SLPs, so that young children who require AAC may receive optimal intervention. On the other hand, 74% (*n*=60) of the participants stated that AAC was within their scope of practice, and of those 74%, 95% (*n*=57) reported that they do provide services to children who require AAC for communication. Of these SLPs, over three-quarters of the participants (79%; *n*=45) felt their knowledge base was adequate to recommend and provide AAC intervention.

ASHA's position statement on AAC service provision (2005) states that "the SLP who is practicing within this area (AAC) shall acquire and maintain the knowledge and skills that are necessary to provide quality professional services." As a result of the data gathered in the current investigation, it is apparent that all practicing SLPs need training in AAC. Those who are already providing AAC services will need to keep their knowledge and skills current, and those who feel AAC is outside of their scope of practice, or who are not providing AAC services, need knowledge and skills to build their

awareness about the clinical populations for whom AAC is appropriate, as well as to increase their understanding of their responsibilities to these individuals in terms of assessment and intervention service provision.

Additionally, most participants who responded that AAC was not within their scope of practice graduated prior to 1990 (*n*=15), with the exception of 3. This may lead one to conclude that knowledge and skills in AAC service provision may be contingent on the year graduated with a master's degree in Speech-Language Pathology; however, the data from the current study indicate that just as many participants (*n*=16) who graduated before 1990 answered "yes" to AAC intervention being within their scope of practice. Differences were noted, however, regarding whether a participant received training in AAC in their academic program and if they reported AAC being in a SLP's scope of practice. Of the participants who did receive AAC training in their academic program (48%; *n*=43), 88% (*n*=35) of those participants answered "yes" to AAC being in a SLP's scope of practice and 12% (*n*=5) answered "no" to AAC being in a SLP's scope of practice. On the other hand, for participants who reported not receiving AAC training in their academic program (52%; *n*=46), 61% of those participants (*n*=25) responded positively to AAC being in a SLP's scope of practice and 39% (*n*=16) responded negatively to AAC being in a SLP's scope of practice. More investigation of the variables that contribute to opinions on AAC in relation to SLP scope of practice may be necessary to determine specifically the differences between SLPs who feel AAC is within their scope of practice and those who do not, as well as to determine if additional training and education changes these opinions.

The results of this investigation, in this area, are consistent with previously published data. Ratcliff, Koul, and Lloyd (2008) distributed a survey to graduating students in Speech-Language Pathology and their faculty regarding courses and clinical hours offered in AAC. The survey investigated whether recently graduated SLPs felt prepared in the service provision of AAC. They found that 73% of the academic programs offered a separate course in AAC and that, although an AAC course was available, 48% reported the course was elective in their academic program. When asked if clinical hours were obtained in AAC, 47% responded that 1-25% of their students obtained clinical hours in AAC. More than half of the participants (67%) reported that few of their graduating students were adequately prepared to provide services for individuals who require AAC. Although Ratcliff et al. (2008) noted an increase in AAC training in academic programs when compared to reports on the same topic published earlier (Ratcliff & Beukelman, 1995), practicing SLPs continue to report feeling inadequate in their knowledge and skills in the service provision of AAC (Ratcliff et al., 2008). These findings support the results of this investigation in that a) more than half of the SLPs reporting no training in AAC (52%; *n*=46) and b) one-quarter (26%; *n*=21) of the participants answered "no" to AAC being in a SLP's scope of practice, citing their lack of training or experience as major reasons for these opinions. This indicates a necessity for more opportunities for AAC training and experience in academic programs in order to ensure the needs of individuals who require AAC are met.

Active Versus Passive Communicators

All of the participants who continued on with the survey to this point (that is, all of the participants who reported providing AAC services to children between the ages of

birth to five years; *n*=57) reported on their opinions about the "active" or "passive" nature of the communication style of the children who required AAC with whom they have worked over the course of their career (either currently or at some point in the past). Differences were noted in the responses provided by the participants regarding service provision to children who required AAC whom they considered "active" communicators versus those they considered "passive" communicators. The definitions of an "active" communication style and "passive" communication style from Fey (1986) were utilized and were provided for the participants to aid them in making their judgments. Participants in the current study reported having more "passive" communicators on their caseloads than "active" communicators. This is consistent with the literature published to date, which characterizes the majority of individuals who require AAC as "passive" communicators (Basil, 1992; Buzolich & Lunger, 1995; Harris, 1982; Light et al., 1999; Light et al., 1985; Lilienfeld & Alant, 2005). Specific differences between "active" and "passive" communicators reported in the data from the current project included information about the types of communication acts used by the children who required AAC and whether attempts to initiate play with peers as well as include peers in intervention sessions existed. Additionally, variations in intervention and AAC system design were reflected in the participants' responses. For example, children considered "active" communicators were provided with a higher ratio of comments and nonobligatory comments in their AAC systems; however, vocabulary representing wants and needs was ranked the highest regardless of perceived communication style.

Communication acts. In 1986, Fey proposed a framework for designing intervention contingent on a child's conversational style. In this framework, he

recommended teaching more assertive conversational acts to the passive communicator. This recommendation is echoed in the AAC literature, specifically in relation to the development of communicative competence (Light, 1989, 1997). For individuals who require AAC, as responsiveness to the partner and maintaining and extending a conversation topic increases, so does the perception of communicative competence (Buzolich et al., 1991; Light, 1989, Light & Binger, 1998; Light et al. 1999). As a result, more vocabulary and potentially more communicative opportunities need to be available to the "passive" communicator who requires AAC so that with intervention, the individual may become more active in a communicative interaction.

Results from the survey indicated some differences in the vocabulary that were reportedly available to children considered "active" and "passive" communicators. It was reported that vocabulary to initiate, maintain, and extend an interaction are available for all children who require AAC; however, it is uncertain whether simply having the vocabulary available is sufficient for increasing assertive conversational acts. In fact, the SLPs in the current project reported that children who were perceived as "passive" communicators primarily communicated to respond (72%; *n*=38) and request (79%; *n*=42), while perceived "active" communicators were reported to communicate to respond (83%; *n*=38), initiate (89%; *n*=41), comment (87%; *n*=40), protest (85%, *n*=39), question (74%; *n*=34), and request (91%; *n*=42). These findings are consistent with Fey's (1986) descriptions of children who are viewed as "active" or "passive" communicators. He claimed that "active" communicators initiate more interactions by adding or requesting for information. On the other hand, the "passive" communicators take

obligatory turns in the interaction but do not introduce new information to extend or maintain the conversation.

Commenting. With regard to social communication and communicative interactions, Buzolich et al. (1991) stated, "commenting is an important function in maintaining a dialogue with both aided and natural speakers" (p. 88). Teaching nonobligatory turns is an important skill for individuals who use AAC systems to learn for multiple reasons. First, this skill allows the individual to establish social closeness in communicative interactions rather than only expressing wants and needs, which is generally accomplished through the use of requests (Buzolich et al., 1991; Light & Binger, 1998). Second, use of nonobligatory turns allows the communication partner to see that the individual is "interested, involved, and a competent communication partner" (Light & Binger, 1998, p. 113). This facilitates the development of sociorelational skills that further contribute to the development of communicative competence (Buzolich & Lunger, 1995; Light, 1989). Lastly, research has shown that individuals who require AAC tend to be passive communicators, in that several studies have demonstrated that individuals who require AAC generally only take obligatory turns in conversation and forego taking nonobligatory turns (Buzolich & Lunger, 1995; Harris, 1982; Light et al., 1999; Light et al., 1985; Lilienfeld & Alant, 2005). Teaching individuals who require AAC to take nonobligatory turns in conversation has further been shown to increase their participation as well as the number of turns taken in interactions (Buzolich et al., 1991). When this communicative change occurs, the individual who requires AAC becomes a more active communicator (Buzolich & Lunger, 1995; Buzolich et al., 1991).

The results from the current investigation suggest that young children who require AAC are provided with appropriate vocabulary to get their needs and wants met as this was the highest ranked communicative function represented on the children's AAC systems. It is questionable, however, whether their AAC systems give them the capability to engage in meaningful interactions and contribute equally in a conversation. SLPs may be unintentionally limiting the children's communicative opportunities with the decreased vocabulary available representing a variety of communicative functions on the children's AAC systems. Additionally, findings from the current survey suggest that SLPs are more likely to provide vocabulary for the purpose of commenting to children who require AAC whom they consider "active" communicators. However, children who require AAC who are considered "passive" communicators also need to have the vocabulary to comment in communicative interactions available in their AAC systems. These children, the ones who are considered "passive" communicators, will need to be taught to take nonobligatory turns and to make comments in interactions as these are essential skills to achieving communicative competence (Buzolich et al., 1991). To support this assertion, Cress and Marvin (2003) stated that clinicians commonly target requests for wants and needs longer than is functionally appropriate where emphasis should be placed on promoting other communication forms for social interaction.

Partner-focused questions. Light et al. (1999) conducted an investigation to determine if asking partner-focused questions contributed to the perception of the communicative competence of an individual who requires AAC. Partner-focused questions were defined as "questions directed toward the communication partner that are focused on the partner, his/her interests, and experiences" (Light et al., 1999, p. 242).

Additionally, the use of partner-focused questions has been cited in the literature as a major contributing factor to the development of communicative competence because it requires skills in one of Light's four domains, social competence (Light, 1989.) Further, the literature argues that the social domain of communicative competence can be the most challenging for individuals who require AAC to acquire (Buzolich et al., 1991; Light et al. 1999; Lilienfeld & Alant, 2005). The findings of the study by Light et al. (1999) study indicated positive results in that the individuals who required AAC were viewed as more competent communicators when they asked partner-focused questions. In addition, after the individuals who required AAC were taught to ask partner-focused questions, their communication partners described conversations with them as being of higher quality and more meaningful (Light et al., 1999). Because of the importance of the use of partner-focused questions to the development of communicative competence, the participants in the current study were asked if the vocabulary necessary for asking partner-focused questions was available to the children on their caseload who required AAC.

Here again, as noted in the results, a difference was observed in the survey responses regarding the vocabulary available on the AAC systems of children considered "passive" or "active" communicators. It must be noted that the SLPs reported (53%; *n*=9) that asking partner-focused questions may be too difficult for both "active" and "passive" communicators, which may be the case when answering the question about children on the younger end of the age range targeted in this investigation. However, more participants (63%; *n*=29) responded that vocabulary was available for asking partner-focused questions for children they considered to be "active" communicators. This is an

important finding because it is possible that the lack of vocabulary for asking partner-focused questions available to some children may be contributing to the perception of a "passive" communication style. This is again consistent with the results reported by Light et al. (1999), as at one point in their investigation, they noted a decline in the use of partner-focused questions by one of the subjects in the study. This decline in the use of partner-focused questions directly correlated with lower communication partner judgments of communicative competence.

Another difference in the information reported for "active" and "passive" communicators in the current investigation was the number of turns taken in a conversation. Participants reported that the children on their caseload whom they considered "active" communicators took more turns during conversation than those children they considered "passive" communicators. This may suggest that the children who required AAC who were considered "passive" communicators were not being provided with equal means, or perhaps with opportunities, to actively participate in conversations. This supports the need for vocabulary for commenting and for asking partner-focused questions to be available on the children's AAC systems and for them to be provided with opportunities to comment and ask partner-focused questions. These two differences for "passive" communicators may greatly contribute to the development of communicative competence for these children as well as aid in their ability to become more "active" communicators.

Available vocabulary to initiate play. Participants from this investigation were also asked about the vocabulary provided to children who required AAC for the purpose of initiating play interactions. As with the results reported above, more of the SLPs

(100%; *n*=40) reported vocabulary being available to initiate play interactions for the children they considered to be "active" communicators than for the children they considered "passive" communicators. This may result in children who are "passive" communicators making fewer attempts to initiate play interactions with their peers, and therefore being perceived as having less need for this vocabulary than "active" communicators. However, it is possible that the children who are considered "passive" communicators may attempt to initiate more play interactions more frequently if given the opportunity and appropriate means to do so. In fact, Fey (1986) suggested writing goals to aid children who are considered "passive" communicators to become more "active" in communicative interactions. He recommended teaching assertive acts for use across multiple settings. This recommendation is also presented in the AAC literature. It has long been recommended that individuals who require AAC be taught to use assertive acts in order to exert more control and participate equally in interactions (Light et al., 1985; Buzolich & Lunger, 1995).

Types of questions asked to children who require AAC. The final difference between the services provided to children considered "passive" communicators and children considered "active" communicators identified in the current investigation was related to the types of questions the SLPs reported being asked to the children who required AAC. Although these children, both "active" and "passive" communicators, were most often asked preference yes/no questions, children classified as "active" communicators were reportedly asked other, additional, types of questions such as partner-focused questions and follow-up questions. These findings are consistent with available research that has stated that individuals who communicate via speech tend to

control the interaction while individuals who require AAC tend to take on a respondent role in interactions (Lilienfeld & Alant, 2005; Light et al., 1985; Harris, 1982). Light and colleagues (1985) observed the nature of interactions between caregivers and their children who require AAC. They found that the caregivers asked questions but did not always require or wait for a response. Additionally, the children who required AAC in the study fulfilled obligatory turns but did not comment or ask their caregivers questions, which limited the length and quality of the interactions (Light et al., 1985). Findings from the current investigation indicate that this dynamic is still in place, particularly for children who require AAC who are classified as "passive" communicators. These children are given limited opportunities to engage in meaningful and ongoing interactions with their communication partners, which is evident by the fact that they are primarily (93%) asked preference yes/no questions.

In addition, Light asserted the importance of using a two-pronged intervention approach to teach communication partners and individuals who require AAC strategies for effective and efficient communication. By teaching communication partners how to facilitate communication with the individual who requires AAC, an improved equality in the rate of turn taking during communicative interactions will take place (Light, Dattilo, English, Gutierrez, & Hartz, 1992). The data from the current investigation support the assertion that a two-pronged approach to intervention is critical for individuals who require AAC as they cannot control or dictate the ways in which they are integrated into interactions nor can they change the expectations of their communication partners have regarding their level of participation in social interactions.

It must be noted that an individual's passive nature of communication may be related to the use of the AAC system itself and not necessarily related to the lack of opportunities or means that the SLPs are providing. The AAC system itself may increase the individual's passivity; however, passivity is noted in other populations such as individuals with a Specific Language Impairment (SLI) and English as a Second Language (ESL). In fact, one may conclude passivity is a hallmark of communication disorders. However, Light (1989) argues individuals who require AAC can achieve communicative competence when provided with the appropriate training, means, and opportunities. With communicative competence, the individual who requires AAC actively participates in communicative interactions. This does raise the question and indicate future research to explore whether passivity is related to the individual's diagnosis or use of the AAC system.

Peer Inclusion

As of late, the literature has supported conducting intervention in the natural environment as best practice (Calculator & Black, 2009). The AAC literature also supports this in that it is commonly reported that for individuals who require AAC, functionality needs to be assessed in natural environments to determine how they meet communication demands of activities of daily life (Light, 1989). If the natural environment and the demands of daily life are considered from the beginning, the individual who requires AAC will become communicatively competent in the natural environment through the acquisition and generalization of skills taught in intervention. Calculator and Black (2009) continued that teaching children who require AAC functional skills will not only help them to better communicate today but also in the

future. This is echoed by Light (1989) who stated that new skills should be combined with acquired skills to increase functionality. The acquisition of functional skills will impact the participation and relationships of children who require AAC at home, school, and the community (Calculator & Black, 2009). For children, whether they require AAC or are able to communicate via the more traditional mode of speech, the natural environment (home, school, or the community) includes other children, their peers. Children who require AAC must learn to use effective and efficient means to communicate to interact with their peers and for the purpose of developing friendships (Calculator & Black, 2009; Light, 1989). So, because best practice recommends AAC intervention take place in the children's natural environment, best practice also necessitates the inclusion of peers.

To investigate the implementation of best practice in this area, the participants were first asked about their inclusion of peers in intervention sessions with children who do not require AAC. The majority of the participants, 82% (*n*=47), stated they did include peers in intervention sessions with children who do not require AAC. Encouragingly, almost the same number of participants, 79% (*n*=44), responded that they also include peers in intervention sessions with children who require AAC. Although there appears to be no difference between SLP practices regarding peer inclusion in intervention sessions, the data still indicate that almost one-quarter (21%; *n*=12) of the participants do not include peers in AAC intervention sessions. For these participants, their clinical practices do not coincide with best practice. The top reason given by these 21% of the participants for why they do not include peers in intervention sessions was that they (the SLPs) were targeting other areas of language. This is concerning as

Wolfberg and Schuler (2006) illustrated the importance of peer play and culture. The exclusion of a child from peer play and culture can exacerbate their disability as they miss out on opportunities for play and peer interactions that adults cannot provide. Future research is warranted to gather more information regarding the specifics of why peers are not being included in intervention given that best practice suggests the importance of this aspect of intervention (Light, 1989; Light & Binger, 1998; Light et al., 1992).

Given that a two-pronged approach to intervention is considered best practice in the field of AAC, information has also been published regarding the types of information (e.g., training) that should be provided to the communication partners of individuals who require AAC (Kent-Walsh & McNaughton, 2005; Light et al., 1992). Communicative competence is contingent on the context, making the communication partner a contributor to the efficacy of the conversation (Light, 1989; Calculator & Black, 2009). Information has also been published in the AAC literature regarding the many different types of communication partners that should receive training related to supporting communication when AAC is involved. Peers are natural communication partners for all individuals who require AAC, and this includes young children (McCarthy & Light, 2001; Wolfberg & Schuler, 2006). Because of this, peers need to know about communicating with another child who requires AAC. How to effectively get them this information is critical knowledge for the SLP who provides services to children who require AAC. Results from the current study indicated that 64% of participants (n=29) provided training to peers during intervention sessions. The training the participants reported providing to the peers included teaching them to a) allow the child utilizing AAC more time to respond, b) ask the child utilizing AAC to play, and c) be in close proximity to the child utilizing AAC. It

is promising that more than half of the participants included and provided training to peers. It is also encouraging that when training was provided to peers regarding how to communicate and interact with a child who requires AAC, that the skills taught are consistent with those that are recommended in the AAC literature (Buzolich & Lunger, 1995; McCarthy & Light, 2001). However, a need for more training and education for SLPs is evident in these findings because less than 100% of the SLPs reported including peers in intervention and/or training peers in the needed interaction skills for the development of communicative competence and success in communicative interactions.

Finally, the participants reported a difference in the children who required AAC with whom peers communicated more frequently. It was reported that, in their (the SLP's) experience, peers communicated more often with children who were classified as "active" communicators rather than the children classified as "passive" communicators. These results further corroborate the need for peer training. Through teaching peers to be more cognizant of how the child utilizing AAC communicates, the interactions will be more successful and the dominant nature of the speaking partner in interactions will be reduced (Kent-Walsh & McNaughton, 2005).

Clinical Implications

With one-quarter of the participants stating that AAC service provision was not within an SLP's scope of practice, more training and education must be provided to them (SLPs in general) in order for the needs of children with complex communication to be met. Another problem is the limited number of experts in the field of AAC which is adversely impacting the professional training of SLPs. Binger and Light's (2006) research regarding the percentage of preschoolers on a SLP's caseload should encourage

SLPs working with young children to gain adequate knowledge and skill to provide quality services to this population. A barrier identified in this investigation was the participants' reports of feeling discomfort with service provision in AAC. This implicates that more training must take place in academic programs so SLPs feel prepared to meet the needs of children with complex communication needs. This also indicates a call for specialization at the Master's level of education to help prepare SLPs. Further, additional training and education should be received through CE hours so that their practices stay current and inline with best practice.

The results of this study also indicated that SLPs must design their intervention according to the child's communication style. Findings from this investigation suggest that children characterized as "passive" communicators are not being provided with efficient means to initiate and participate equally in interactions, which may be contributing to their passiveness. These children need to be provided opportunities for interactions to take place especially when given the necessary vocabulary to comment, ask partner-focused questions, and initiate play interactions.

Finally, intervention should take place in the child's natural environment. Almost one-quarter of the participants from this investigation did not include peers in intervention. This is startling given the fact that children who require AAC need numerous opportunities to communicate with others so they can develop and achieve communicative competence.

Limitations of the Study

There are several limitations of the current investigation that must be acknowledged. The scope of the study was limited in that only SLPs working in early

intervention with children under the age of 5 in metropolitan areas were included in the study. Generalizability of the results must be done with caution as coverage and sampling error were evident in the study's design. Coverage error may be higher as SLPs in rural areas were not identified as participants. Sampling error may have also occurred as the researcher relied on ASHA's online membership directory for provision of a comprehensive contact list. Nonresponse error was reduced through sending multiple follow up emails. Despite this, the 21% response rate is another limitation of the current investigation. It is not known for sure, but this may be due to the length of the survey. A pilot survey was used to decrease measurement error. Internal validity was accounted for as the selection of participants was random based upon geographic location and the results were not based upon subjective interpretation.

Significance and Contribution

The topic of the study is significant as more research in the area of AAC is needed to help professionals provide services that enable individuals who require AAC to acquire communicative competence. More studies have focused on vocabulary selection and AAC device use, and limited information has been available regarding social communication and AAC intervention. Individuals who require AAC have more barriers that may impede their engagement in a conversation, resulting in the need for more training and support from SLPs. Results of the study identified areas of future research, which included training programs for SLPs in developing interventions for individuals who require AAC that include social interaction. It also highlighted specific problems regarding why SLPs were not including peers in intervention. Ultimately, the study

provided a framework for future research regarding SLPs' practices in developing social competence in individuals using an AAC system.

Conclusion

The survey's results are promising in that some SLPs are following best practice by providing vocabulary to children who require AAC to comment, ask partner-focused questions, and initiate a play interaction. However, children's AAC systems continue to overrepresent requests, which help meet their needs and wants but do not facilitate social interactions. Also, children who require AAC who are considered "passive" communicators are not being provided with the means to actively participate in communicative interactions. Areas for future research could determine if the nature of "passive" communicators is due to their communication style or the lack of opportunities and/or means provided to them.

Evidence from the survey also suggests that peers are being included in AAC intervention sessions with some training being provided beforehand. More efforts could be employed to increase the rates with which peers are included in intervention sessions since almost one-quarter of the participants reported they do not include peers in intervention sessions. Possible barriers for why peers are not included in intervention sessions included a) other language forms are being targeted, b) there is no access to the child's peers, c) it is too difficult, or d) requires too much time. Future research could include a synthesis of the efficacy of peer intervention in the development of social communication. A longitudinal study to show outcomes of early intervention with the inclusion of peers would also provide more insight to its importance.

Finally, communication is a transactional process that depends on the participation of both individuals regardless of communication modalities utilized. Although gains are being made and there is some evidence that SLPs are following best practice, more emphasis needs to be placed on developing social communication for the purposes of becoming a competent communicator in young children utilizing AAC. When communicative competence is achieved, one can fully participate in life activities.

APPENDIX A

LIST OF METROPOLITAN CITIES

1. Salt Lake City, UT
2. Honolulu, Hi
3. Sacramento, CA
4. San Diego, CA
5. Portland, OR
6. Las Vegas, NV
7. Phoenix, AZ
8. Denver, CO
9. Oklahoma City, OK
10. Austin, TX
11. St. Louis, MO
12. Minneapolis, MN
13. Columbus, OH
14. New Orleans, LA
15. Memphis, TN
16. Jacksonville, FL
17. Pittsburgh, PA
18. Raleigh, NC
19. Rochester, NY
20. Hartford, CT

APPENDIX B

SURVEY INSTRUMENT

Augmentative and Alternative Communication
in Young Children – Birth to Age 8

Provider Demographic Information

1. What is your gender?
   - □ Male
   - □ Female

2. What is your age?
   - □ <25 years
   - □ 26-30 years
   - □ 30-39 years
   - □ 40-49 years
   - □ 50-59 years
   - □ 60+ years

3. What is your level of education in the field of speech-language pathology?
   - □ Associate's degree
   - □ Bachelor's degree
   - □ Master's degree
   - □ Doctorate
   - □ Other _____

4. Where did you earn your highest degree in the field of speech-language pathology (specific university/college)?
   _____

5. Did you have a course as part of your degree program specifically with regard to augmentative and alternative communication (AAC)?
   □ Yes □ No

   If yes, what type of course was it?
   - □ Full-length course (e.g. semester, quarter, etc.)
   - □ Seminar

□ Independent Study
□ Other _____

6. What year did you graduate with your degree in the field of speech-language pathology? _____

7. How many years have you been in clinical practice? _____

Of that time, how many years have you spent working with young children under the age of 5? _____

In what types of settings have you worked with children age eight or younger? (Check all that apply)

□ Private clinic
□ Charter/private schools
□ Public schools
□ Medical/Outpatient rehab
□ Medical/Inpatient
□ Other _____

8. Are you ASHA certified? □ Yes □ No

9. Are you state licensed? □ Yes □ No

If yes, in what state(s)? _____

10. Are you a member of any ASHA special interest divisions? □ Yes □ No

If yes, which SID(s): _____

General Questions Regarding AAC Intervention

11. Do you feel it is within your scope of practice to provide AAC intervention and management for children birth – age 8 years?

□ Yes □ No

If no, why not? (Check all that apply)

□ SLPs are not trained in AAC
□ Other professionals are more highly qualified
□ AAC intervention is not "speech" intervention
□ I am not personally comfortable with service provision in that area
□ Other _____

12. If you answered "yes" to question #1, do you feel your knowledge base is adequate to recommend and provide this intervention?

□ Yes □ No

13. Where do you receive most of your information regarding AAC intervention and management? (Please rank your selections with "1" being the most commonly referred to resource)
    - ____ Internet
    - ____ Peer-Reviewed Journals/Publications
    - ____ Professional Conferences
    - ____ Other professionals (e.g., SLP, OT, Special Education Teachers)
    - ____ AAC manufacturers or their representatives
    - ____ Special Division Group Membership
    - ____ Other _____

14. How many children ages birth – 8 years on your caseload are *currently* utilizing an AAC system? (Categorize based on the child's **primary** system use)
    _____ # UNAIDED systems (e.g. gestures, sign language – American Sign Language, Signing Exact English; sign systems – fingerspelling)
    _____ # LOW TECHNOLOGY systems (e.g. no computer elements such as communication boards/books – eye-gaze, PECS)
    _____ # HIGH TECHNOLOGY (e.g. computer-based, speech output)
    _____ # of dedicated devices (utilized ONLY as an AAC device)
    _____ # of nondedicated devices (utilized for multiple applications – e.g. television/music remote, computer/internet access)

15. How many of the children you listed in question #4 utilize more than one type of AAC system or AAC modality? _____

16. How many of the total children utilizing ***aided*** AAC devices own their device? _____

17. Of those children utilizing a **high tech** system as their primary mode of communication, what is the most common back-up method for communication?
    - □ Gestures
    - □ Sign language system (e.g., American Sign Language, Signing Exact English, fingerspelling)
    - □ Communication board
    - □ PECS (Picture Exchange Communication System)
    - □ Alphabet board
    - □ Vocalization/speech
    - □ None/back-up is not needed
    - □ Other _____

18. How many children on your caseload ages birth – 8 years might be able to benefit (e.g. are not able to meet all of their communication needs adequately given their current communication modality) from an aided or unaided AAC system (as

described in Question #4), but are NOT CURRENTLY utilizing one? Write the number of children next to the appropriate age range.

_____Age birth – 1 year
_____Age 1+ year – 2 years
_____Age 2+ years – 3 years
_____Age 3+ years – 4 years
_____Age 4+ years – 5 years
_____Age 5+ years

19. Have any of these children (specified in Question #8) previously utilized an **AIDED** AAC device (e.g., a low technology or high technology system, as described in Question #4)?

□ Yes □ No

20. In your opinion, what are the factors influencing the "non-use" of an AAC system for these children (e.g. provided with a system but not utilizing it fully or at all)? (Check all that apply)

□ Lack of professional knowledge regarding AAC & intervention
□ Financial constraints/Insurance coverage issues
□ Too much effort for family
□ Inadequate training
□ Inadequate resources
□ System/device issues (e.g. cumbersome, difficult to learn, etc.)
□ School constraints
□ Lack of appropriate vocabulary

21. For the children on your caseload who are currently using an aided AAC system, who is primarily responsible for the management & update of the device (including low tech as well as high tech)?

□ SLP
□ Special Education teacher
□ General Education teacher
□ Parents
□ Other _____

22. In your experience, who has typically recommended consideration of an AAC system for a young child?

□ SLP
□ Special Education teacher
□ General Education teacher
□ Parents
□ Other _____

23. What areas are typically assessed when determining an appropriate AAC system? (Check all that apply)

□ Vision

- □ Hearing
- □ Motor skills/abilities/restrictions
- □ Language: comprehension
- □ Language: expression
- □ Cognition
- □ Symbol Representation
- □ Other _____

24. Provide the # of children on your caseload, who utilize an AAC system (aided or unaided), with each of the following diagnoses:
    - _____ Autism spectrum disorder
    - _____ Cerebral palsy
    - _____ Down's syndrome
    - _____ Hearing impairment
    - _____ Intellectual disability
    - _____ Apraxia
    - _____ Traumatic brain injury
    - _____ Other _____

25. Rank the following according to the most important considerations when determining an appropriate AAC system for a child *(1= most important; 12 = least important).*
    - ____ Selection techniques *(e.g., how a symbol is activated via touch screen, joy stick with button, head switch, eye-gaze)*
    - _____ Acceleration techniques
    - _____ Growth potential *(e.g., does the device meet the children's needs as they acquire more language)*
    - _____ Portability/size *(e.g., size of the system and whether children can easily carry it with them)*
    - _____ Durability
    - _____ Intelligibility of speech output *(e.g., how much listeners understand the system's speech output)*
    - _____ Cost
    - _____ Appearance *(e.g., aesthetics of the system)*
    - _____ Client/family preference
    - _____ Amount of training required
    - _____ Clinician familiarity with AAC device
    - _____ Availability of the device

26. Rank the following according to which communicative purposes are represented when designing and developing an AAC system for a child.
    (1=most important; 7=least important)
    - _____ Communicate wants and needs
    - _____ Respond to adult questions
    - _____ Engage in play activities with peers
    - _____ Building grammatically correct sentences with device

_____ Social etiquette (e.g., saying 'thank you')
_____ Social commenting
_____ Asking questions to peers or adults

Social Communication for the Child Utilizing AAC

27. Given that most children who utilize AAC systems can be classified as passive communicators (e.g., a passive communicator does not initiate but waits for others to initiate a communicative interaction; may not express wants or needs), do you support the child in becoming a more active communicator ?

□ Yes □ No

If yes, how do you support this (Check all that apply):

□ Acknowledge all communication attempts made by the child
□ Set up communicative temptations utilizing peers and adults
□ Prompt child to communicate with others through requests, comments, protests, etc.
□ Use activities that are meaningful and motivating to the child
□ Model use of AAC system for the purposes of initiation and question asking
□ Expect the child to initiate by clearly marking opportunities in interaction where an initiation would be appropriate.
□ Ensure that vocabulary needed to be an active communicator is available to the child using an AAC system.

28. What type of communication act(s) do the children with AAC systems on your caseload typically perform? (Check all that apply)

□ N/A
□ Responses
□ Initiations
□ Comments
□ Protests
□ Questions
□ Requests

For the following questions, *symbol* refers to ANY symbolic "mode" of communication children may use such as sign language, PECS, communication books, and (but not limited to) high technology communication devices.

29. In general, what percentage of the vocabulary are requests (e.g. "I want a cookie.")?

□ Less than 25%
□ Between 25-49%
□ Between 50-75%

□ Over 75%

30. In general, what percentage of the vocabulary are comments (e.g., "I like cookies.")?
    - □ Less than 25%
    - □ Between 25-49%
    - □ Between 50-75%
    - □ Over 75%

31. In general, what percentage of the vocabulary are non-obligatory comments (e.g., Wow! Cool!)?
    - □ Less than 25%
    - □ Between 25-49%
    - □ Between 50-75%
    - □ Over 75%

32. In general, is vocabulary included in the AAC system that enables the child to ask partner-focused questions such as questions that request information about someone else (e.g. "How was your weekend?")?

□ Yes □ No

If no, why not? (Check all that apply)
- □ Requires too much time
- □ Not a primary concern
- □ Cannot predict the nature of interactions when developing an AAC system for young children
- □ Too difficult for child
- □ Other_____

33. In general, is vocabulary included in the AAC system that relates to activities, toys, movies that young children and same-age peers may be interested in?

□ Yes □ No

If no, why not? (Check all that apply)
- □ Requires too much time
- □ Not a primary concern
- □ Cannot predict the nature of interactions when developing an AAC system for young children
- □ Too difficult for child
- □ Other_____

34. In general, is vocabulary included in the AAC system that allow young children to initiate or terminate a conversation/interaction?

□ Yes □ No

If no, why not? (Check all that apply)

- □ Requires too much time
- □ Not a primary concern
- □ Cannot predict the nature of interactions when developing an AAC system for young children
- □ Too difficult for child
- □ Other_____

35. In general, is vocabulary included in the AAC system that represent play materials available in the classroom/home/daycare setting?

□ Yes □ No

If no, why not? (Check all that apply)

- □ Requires too much time
- □ Not a primary concern
- □ Cannot predict the nature of interactions when developing an AAC system for young children
- □ Too difficult for child
- □ Other_____

36. In general, is vocabulary available in the AAC system for making comments about play other than requesting a specific activity?

□ Yes □ No

If no, why not? (Check all that apply)

- □ Requires too much time
- □ Not a primary concern
- □ Cannot predict the nature of interactions when developing an AAC system for young children
- □ Too difficult for child
- □ Other_____

37. Do the children who use AAC typically have access to the same toys and activities as their peers in the classroom?

□ Yes □ No

If no, why not? (Check all that apply)

- □ Physical limitations
- □ Child does not have appropriate play skills (does not play with toys functionally)
- □ Child is not interested in the toys
- □ Child is pulled out for therapy during play time
- □ Other_____

38. Do children who use AAC ever experience or engage in dramatic play schemes (e.g., play house, restaurant, etc.)?

□ Yes □ No

If no, why not? (Check all that apply)

- □ Physical limitations
- □ Child does not have appropriate play skills (does not play with toys functionally)
- □ Child is not interested in the toys
- □ Child is pulled out for therapy during play time
- □ Other_____

39. In general, is vocabulary available in the AAC systems to initiate play interactions with peers such as "Can I play?", "I want a turn." or "Want to play ___?"

□ Yes □ No

If no, why not? (Check all that apply)

- □ Requires too much time
- □ Not a primary concern
- □ Cannot predict the nature of interactions when developing an AAC system for young children
- □ Too difficult for child
- □ Other_____

40. In your experience, do children utilizing an AAC system watch peers play?

□ Yes □ No

41. In your experience, what types of play have you observed children using AAC engage in? (Check all that apply)

- □ Pretend play (e.g. playing house, restaurant, etc.)
- □ Constructive play (e.g. building with blocks)
- □ Sensorimotor play (e.g. bang and may put toys in their mouth)
  Parallel Play (e.g. play alongside their peers but do not interact)
- □ Solitary Play (e.g. play alone)
- □ Cooperative Play (e.g. engage with peers)
- □ Children who utilize AAC systems to communicate do not use toys/play materials appropriately
- □ Other_____

42. Do children using an AAC system on your caseload attempt to interact with their peers?

□ Yes □ No

If yes, how do children using an AAC system attempt to interact with their peers?

- □ Watch peers play
- □ Initiate an interaction inappropriately, for example, by hitting a peer
- □ I have never observed a child using an AAC system attempt to play with peers.
- □ Laugh at peer's actions.

□ Establish eye contact with peer followed by looking at a toy.

43. Do you teach children who use an AAC system specific strategies to facilitate interactions with peers?

□ Yes □ No

If yes, what type of strategies do you teach the children?

□ Establish eye contact
□ Ask their peer to play
□ Ask peer questions or comment about play
□ Get in close proximity to peer playing
□ Other_____

44. Who do the children using the AAC system on your caseload communicate with on a daily basis? (Check all that apply)

□ Parents
□ Caregiver
□ Teacher
□ Siblings
□ Peers
□ Other: _____

45. In your experience, what types of questions do you observe peers and school staff asking the children utilizing an AAC system?

□ Guided questions (e.g., What will you say to Becky at recess?)
□ Factual questions (e.g., children can provide a concrete, straight-forward answer)
□ Preference yes/no questions (e.g., Do you want to play blocks?)
□ Partner-focused questions (e.g., What do you want to play?)
□ Follow-up questions (e.g., What did you play today?)
□ Other _____

46. In general, how many turns do you expect a child who uses an AAC system to take in a conversation?

□ at least 1 turn
□ at least 2 turns
□ at least 3 turns
□ more than 3 turns

47. What factors influence the number of turns you would expect a child who uses an AAC system to take in a conversation? (Check all that apply)

□ Developmental age
□ Interest level in topic
□ Knowledge Base
□ Attention
□ Accessibility of AAC system
□ Communicative Intent

- □ Interest level in communication with adults and peers
- □ Persistence of communication partner
- □ Other: _____

Peer Interactions

Peers can include children who are the same-age, older, or younger than children utilizing an AAC system. The definition of peer for the purpose of this survey also includes siblings and other children who may have a disability.

48. In your experience, you feel it is important to include peers in AAC intervention.
    - □ Strongly Agree
    - □ Agree
    - □ Neutral
    - □ Disagree
    - □ Strongly Disagree

49. In general, are peers involved in your AAC intervention sessions?
    □ Yes □ No

    If no, why not? (Check all that apply)
    - □ Not appropriate to include them
    - □ Takes too much time
    - □ Do not have access to the child's peers
    - □ Do not feel it is important
    - □ Other _____

    If yes, how are they involved during intervention? (Check all that apply)
    - □ Peer model
    - □ Interaction partner
    - □ Target child's assigned "buddy"
    - □ Peer and target child assigned to same play area/group
    - □ Other _____

50. If peers are involved in intervention, what type of training is provided to them?
    - □ No training is provided/needed
    - □ Peer receives training prior to involvement in the intervention session, either individually or in a group with other children.
    - □ Peer receives prompting during intervention (e.g., "Ask 'target child' to play blocks.")
    - □ Other _____

51. If training is conducted, what type of strategies are peers taught to facilitate communication with a child using AAC (check all that apply)?
    - □ Be in close proximity to the child

- □ Allow more time for the child to respond
- □ Ask the child using an AAC system questions about what they want to play, etc.
- □ Do not teach peers any specific strategies
- □ Other _____

52. How are peers selected for inclusion in intervention? (Check all that apply)
    - □ General education teacher chooses children who are "appropriate"
    - □ Child who uses AAC system chooses a peer to participate
    - □ Children with whom the target child has a relationship
    - □ Nurturing and empathetic personalities
    - □ Above-average language skills
    - □ Above-average social skills
    - □ Above-average language and social skills
    - □ Typically-developing across all developmental domains
    - □ Assigned to the same table/group as the target child
    - □ Random selection (e.g., no specific reason as to why I selected them for the intervention)
    - □ Peers are not included in the intervention process
    - □ Other_____

53. How are communicative interactions between children who use AAC and their peers facilitated?
    - □ Peers are given highly motivating items to facilitate requests from child utilizing AAC
    - □ Adult acts as a mediator of the interaction by redirecting child's requests/comments via AAC communication system to their peers
    - □ Ask peers to sabotage classroom or social routines
    - □ Other _____

54. What materials or play activities are used to set up communicative interactions?
    - □ Toys and/or activities that are motivating
    - □ Materials (toys and activities) that are available or easily accessible
    - □ Greetings
    - □ Snack/Mealtime
    - □ Other_____

55. What types of activities are used to promote interactions with peers whether in intervention or the natural environment? (Check all that apply)
    - □ Greetings
    - □ Interactive Games
    - □ Snack/Mealtime
    - □ Playtime
    - □ Structured activities such as small groups or circle time
    - □ Other_____

56. In general, do the children utilizing AAC systems have opportunities to interact with typically developing peers in the natural environment (outside of intervention sessions)?

□ Yes □ No □ Don't know

57. In your experience, how often do peer interactions in the natural environment take place with the child utilizing an AAC system?

□ Never
□ Rarely (2-3 times a month)
□ Sometimes (approximately once a week)
□ Often (2-3 times a week)
□ Very Often (Daily)

58. In your experience, have you observed peers communicating with children utilizing an AAC device?

□ Yes □ No

59. Have you observed a difference in how peers interact with other typically developing children as compared with how they interact with the child who utilizes an AAC device?

□ Yes □ No

If yes, what are the differences in how they communicate with the child(ren) who utilize AAC systems?

□ Peer treats target child as if they were younger (e.g. may use 'motherese' when talking with the child)
□ Peer ignores target child
□ Peer uses third party (e.g. parent or teacher) to communicate with target child
□ Other _____

60. What role do peers typically take when interacting with a child utilizing an AAC device?

□ Passive
□ Equal (e.g. treat like any other peer)
□ Assertive (e.g. take on adult-like role)
□ Other_____

APPENDIX C

SURVEY RESULTS

Children utilizing AAC who are classified as a Passive Communicator		Children utilizing AAC who are classified as an Active Communicator	
No. of passive communicators on a caseload	Percentage/No.	No. of active communicators on a caseload	Percentage/No.
None	4% (2)	None	20% (11)
1-3 children	28% (16)	1-3 children	44% (24)
4-6 children	25% (14)	4-6 children	13% (6)
7-9 children	21% (12)	7-9 children	11% (5)
10+children	23% (13)	10+ children	17% (8)
Support to become an active communicator	Percentage/No.	Continue to support development of active communicator	Percentage/No.
Yes	96% (53)	Acknowledge communication attempts	93% (43)
No	4% (2)	Set up communicative temptations	80% (37)
		Ensure that vocabulary needed to be an active communicator is available	96% (44)
		Teach new language forms	87% (40)
		Other	4% (2)
Strategies to support to become an active communicator	Percentage/No.		
Acknowledge communication attempts	98% (52)		
Set up communicative temptations	89% (47)		
Prompt child to communicate with others	92% (49)		
Use activities that are meaningful and motivating	100% (53)		
Model use of AAC system to initiate/ask questions	87% (46)		
Expect the child to initiate by clearly marking opportunities	51% (27)		
Ensure that vocabulary needed to be an active communicator is available	87% (46)		
Other	6% (3)		
Types of communication acts performed by a passive communicator	Percentage/No.	Types of communication acts performed by an active communicator	Percentage/No.

NA	2% (1)	NA	0% (0)
Responses	72% (38)	Responses	83% (38)
Initiations	25% (13)	Initiations	89% (41)
Comments	13% (7)	Comments	87% (40)
Protests	49% (26)	Protests	85% (39)
Questions	13% (7)	Questions	74% (34)
Requests	79% (42)	Requests	91% (42)
Other	6% (3)	Other	0% (0)
Percentage of vocabulary for requests	Percentage/No.	Percentage of vocabulary for requests	Percentage/No.
Less than 25%	8% (4)	Less than 25%	9% (4)
Between 26-49%	25% (13)	Between 26-49%	37% (17)
Between 50-75%	47% (25)	Between 50-75%	41% (19)
Over 75%	21% (11)	Over 75%	13% (6)
Percentage of vocabulary for comments	Percentage/No.	Percentage of vocabulary for comments	Percentage/No.
Less than 25%	66% (35)	Less than 25%	30% (14)
Between 26-49%	32% (17)	Between 26-49%	65% (30)
Between 50-75%	2% (1)	Between 50-75%	4% (2)
Over 75%	0% (0)	Over 75%	0% (0)
Percentage of vocabulary for nonobligatory comments	Percentage/No.	Percentage of vocabulary for nonobligatory comments	Percentage/No.
Less than 25%	96% (52)	Less than 25%	74% (34)
Between 26-49%	4% (2)	Between 26-49%	24% (11)
Between 50-75%	0% (0)	Between 50-75%	2% (1)
Over 75%	0% (0)	Over 75%	0% (0)
Available vocabulary that enables passive communicators to ask partner-focused questions	Percentage/No.	Available vocabulary that enables active communicators to ask partner-focused questions	Percentage/No.
Yes	33%	Yes	63%
No	67%	No	37%
Reasons as to why vocabulary is not available to ask partner-focused questions	Percentage/No.	Reasons as to why vocabulary is not available to ask partner-focused questions	Percentage/No.
Requires too much time	5% (2)	Requires too much time	6% (1)
Not a primary concern	30% (11)	Not a primary concern	35% (6)
Cannot predict the nature of interactions	14% (5)	Cannot predict the nature of interactions	24% (4)
Too difficult for these children	76% (29)	Too difficult for these children	53% (9)
Other	30% (11)	Other	24% (4)
Vocabulary available that relates to activities, toys, materials	Percentage/No.	Vocabulary available that relates to activities, toys, materials	Percentage/No.
Yes	91%	Yes	98%
No	9%	No	2%
Reasons as to why vocabulary is not available that relates to activities, toys, materials	Percentage/No.	Reasons as to why vocabulary is not available that relates to activities, toys, materials	Percentage/No.
Requires too much time	0% (0)	Requires too much time	0% (0)
Not a primary concern	40% (2)	Not a primary concern	0% (0)

Cannot predict the nature of interactions	0% (0)	Cannot predict the nature of interactions	0% (0)
Too difficult for these children	80% (4)	Too difficult for these children	0% (0)
Other	0% (0)	Other	0% (0)
Vocabulary available to initiate terminate a conversation or interaction	Percentage/No.	Vocabulary available to initiate terminate a conversation or interaction	Percentage/No.
Yes	85%	Yes	91%
No	15%	No	9%
Reasons as to why vocabulary is not available to initiate/ terminate a conversation/ interaction	Percentage/No.	Reasons as to why vocabulary is not available to initiate/ terminate a conversation/ interaction	Percentage/No.
Requires too much time	0% (0)	Requires too much time	0% (0)
Not a primary concern	25% (2)	Not a primary concern	25% (1)
Cannot predict the nature of interactions	12% (1)	Cannot predict the nature of interactions	50% (2)
Too difficult for these children	50% (4)	Too difficult for these children	0% (0)
Other	38% (3)	Other	50% (2)
Vocabulary available that represent play materials available in the classroom/home/daycare setting	Percentage/No.	Vocabulary available that represent play materials available in the classroom/home/daycare setting	Percentage/No.
Yes	100%	Yes	100%
No	0%	No	0%
Vocabulary available for making comments about play other than requesting a specific activity	Percentage/No.	Vocabulary available for making comments about play other than requesting a specific activity	Percentage/No.
Yes	73%	Yes	98%
No	27%	No	2%
Reasons as to why no vocabulary is available for making comments about play	Percentage/No.	Reasons as to why no vocabulary is available for making comments about play	Percentage/No.
Requires too much time	0% (0)	Requires too much time	0% (0)
Not a primary concern	7% (1)	Not a primary concern	0% (0)
Cannot predict the nature of interactions	20% (3)	Cannot predict the nature of interactions	0% (0)
Too difficult for these children	53% (8)	Too difficult for these children	0% (0)
Other	33% (5)	Other	100% (1)
Vocabulary available to initiate play interactions	Percentage/No.	Vocabulary available to initiate play interactions	Percentage/No.
Yes	80%	Yes	98%
No	20%	No	2%
Reasons as to why no vocabulary is available to initiate play interactions	Percentage/No.	Reasons as to why no vocabulary is available to initiate play interactions	Percentage/No.
Requires too much time	0% (0)	Requires too much time	0% (0)
Not a primary concern	45% (5)	Not a primary concern	100% (1)

Cannot predict the nature of interactions	0% (0)	Cannot predict the nature of interactions	0% (0)
Too difficult for these children	64% (7)	Too difficult for these children	100% (1)
Other	18% (2)	Other	0% (0)

Do passive communicators have access to the same toys	Percentage/No.	Do active communicators have access to the same toys	Percentage/No.
Yes	93%	Yes	100%
No	7%	No	0%

Reasons for no access to the same toys as their peers	Percentage/No.
Physical limitations	75% (3)
Do not have appropriate play skills	50% (2)
Not interested in the toys	25% (1)
Pulled out for therapy	0% (0)
Other	25% (1)

Do passive communicators engage in dramatic play	Percentage/No.	Do active communicators engage in dramatic play	Percentage/No.
Yes	44%	Yes	87%
No	56%	No	13%

Possible reasons passive communicators do not engage in dramatic play	Percentage/No.	Possible reasons active communicators do not engage in dramatic play	Percentage/No.
Physical limitations	26% (8)	Physical limitations	33% (5)
Do not have appropriate play skills	71% (22)	Do not have appropriate play skills	83% (5)
Not interested in the toys	45% (14)	Not interested in the toys	50% (3)
Pulled out for therapy	0% (0)	Pulled out for therapy	17% (1)
Other	23% (7)	Other	17% (1)

Passive communicators watch peers play	Percentage/No.	Active communicators watch peers play	Percentage/No.
Yes	64%	Yes	100%
No	36%	No	0%

Types of play passive communicators engage in	Percentage/No.	Types of play active communicators engage in	Percentage/No.
Pretend	16%	Pretend	83%
Constructive	45%	Constructive	87%
Sensorimotor	76%	Sensorimotor	53%
Parallel Play	69%	Parallel Play	76%
Solitary Play	85%	Solitary Play	67%
Cooperative Play	9%	Cooperative Play	84%
Do not use toys appropriately	7%	Do not use toys appropriately	7%
Other	7%	Other	4%

Passive communicators attempt to interact with peers	Percentage/No.	Active communicators attempt to interact with peers	Percentage/No.
Yes	49%	Yes	93%
No	51%	No	7%

How they attempt to interact with peers	Percentage/No.	How they attempt to interact with peers	Percentage/No.
Watch peers	85%	Watch peers	91%

Initiate an interaction inappropriate	48%	Initiate an interaction inappropriate	56%
Never observed	4%	Never observed	0%
Laugh at peer's actions	63%	Laugh at peer's actions	81%
Establish eye contact	41%	Establish eye contact	74%
Other	15%	Other	26%

Teach passive communicators strategies to interact with peers	Percentage	Teach active communicators strategies to interact with peers	Percentage
Yes	85%	Yes	98%
No	15%	No	2%

Strategies taught	Percentage	Strategies taught	Percentage
Establish eye contact	64%	Establish eye contact	69%
Ask peer to play	74%	Ask peer to play	82%
Ask peer questions/comment	47%	Ask peer question/comment	80%
Close proximity	83%	Close proximity	82%
Other	19%	Other	5%

Reasons for not teaching strategies to interact with peers	Percentage/No.	Reasons for not teaching strategies to interact with peers	Percentage
Requires too much time	0%	Requires too much time	100%
Not a primary concern	50% (4)	Not a primary concern	100%
Too difficult for these children	50% (4)	Too difficult for these children	0%
Do not have access to peers	0	Do not have access to peers	0
Other	25% (2)	Other	0

Passive communicators daily communication partners	Percentage	Active communicators daily communication partners	Percentage
Parents	97%	Parents	93%
Caregiver	64%	Caregiver	80%
Teacher	91%	Teacher	100%
Sibling	22%	Sibling	73%
Peers	40%	Peers	89%
Other	7%	Other	0

The types of questions asked to passive communicators utilizing AAC	Percentage	The types of questions asked to active communicators utilizing AAC	Percentage
Guided questions	42%	Guided questions	53%
Factual questions	64%	Factual questions	83%
Preference yes/no questions	93%	Preference yes/no questions	96%
Partner-focused questions	60%	Partner-focused questions	89%
Follow-up questions	31%	Follow-up questions	69%
Other	4%	Other	0

Number of turns taken by a passive communicator in a conversation	Percentage	Number of turns taken by an active communicator in a conversation	Percentage
1 turn	47%	1 turn	7%
2 turns	38%	2 turns	33%
3 turns	13%	3 turns	30%
More than 3 turns	4%	More than 3 turns	31%

REFERENCES

American Speech-Language-Hearing Association. (2005). *Roles and responsibilities of speech-language pathologists with respect to alternative communication: Position statement.* Retrieved 8/10/09 from http://www.asha.org/NR/rdonlyres/BA19B90C-1C17-4230-86A8-83B4E12E4365/0/v3PSaac.pdf

Basil, C. (1992). Social interaction and learned helplessness in severely disabled children. *AAC Augmentative and Alternative Communication*, *8*, 188-199.

Beukelman, D., & Mirenda, P. (2005). *Augmentative and alternative communication: supporting children & adults with complex communication needs* (3rd ed.). Baltimore: Paul H. Brookes.

Binger, C., & Light, J. (2006). Demographics of preschoolers who require AAC. *Language Speech Hearing Services in the Schools*, *37*, 200-208.

Buzolich, M.J., King, S.K., & Baroody, S.M. (1991). Acquisition of the commenting function among system users. *Augmentative and Alternative Communication*, *7*, 88-100.

Buzolich, M.J., & Lunger, J., (1995). Empowering system users in peer training. *AAC Augmentative and Alternative Communication*, *11*, 37-45.

Buzolich, M.J., & Wiemann, J. (1988). Turn taking in atypical conversations: The case of the speaker/augmented-communicator dyad. *Journal of Speech and Hearing Research*, *31*, 3-18.

Calculator, S.N., & Black, T. (2009). Validation of an inventory of best practices in the provision of augmentative and alternative communication services to students with severe disabilities in general education classroom. *American Journal of Speech-Language Pathology, 18*, 329-342.

Carter, M., & Maxwell, K. (1998). Promoting interaction with children using augmentative communication through a peer-directed intervention. *International Journal of Disability, Development and Education*, *45*, 75-96.

Causton-Theoharis, J. N., & Malmgren, K. W. (2005). Increasing peer interactions for students with severe disabilities via paraprofessional training. *Exceptional Children, 71*, 431-444.

Clarke, M., & Kirton, A. (2003). Patterns of interaction between children with physical disabilities using augmentative and alternative communication systems and their peers. *Child Language Teaching and Therapy, 19*, 135-151.

Cress, J.C., & Marvin, C.A. (2003). Common questions about AAC services in early intervention. *Augmentative and Alternative Communication, 19*, 254-272.

Dattilo, J., & Light, J. (1993). Setting the stage for leisure: Encouraging reciprocal communication for people using augmentative and alternative communication systems through facilitator instruction. *Therapeutic Recreation Journal, 27*, 156-171.

Dillman, D.A., Smyth, J.D., & Christian, L.M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method* (3rd ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Farrier, L., Yorkston, K., Marriner, N., & Beukelman, D. (1985). Conversational control in nonimpaired speakers using an augmentative communication system. *Augmentative and Alternative Communication, 1*, 65-73.

Fey, M. (1986). *Language intervention with young children*. Needham Heights, MA: Allyn and Bacon.

Giangreco, M. F., Edelman, S. W., Broer, S. M., & Doyle, M. B. (2001). Paraprofessional support of students with disabilities: Literature from the past decade. *Exceptional Children, 68*, 45-64.

Giangreco, M. F., Edelman, S. W., Luiselli, T. E., & MacFarland, S. Z. C. (1997). Helping or hovering? Effects of instructional assistant proximity on students with disabilities. *Exceptional Children, 64*, 7-18.

Harris, D. (1982). Communicative interaction processes involving physically handicapped children. *Topics in Language Disorders, 2*, 21-37.

Hunt, P., Alwell, M., Farron-Davis, F., & Goetz, L. (1996). Creating socially supportive environments for fully included students who experience multiple disabilities. *Journal of the Association for Persons with Severe Handicaps, 21*, 53-71.

Hunt, P., Alwell, M., & Goetz, L. (1988). Acquisition of conversation skills and the reduction of inappropriate social interaction behaviors. *Journal of the Association for Persons with Severe Handicaps, 13*, 20-27.

Hunt, P., Alwell, M., & Goetz, L. (1991). Interacting with peers through conversation turntaking with a communication book adaptation. *AAC: Augmentative and Alternative Communication, 7*, 117-126.

Hunt, P., Alwell, M., Goetz, L., & Sailor, W. (1990). Generalized effects of conversation skill training. *Journal of the Association for Persons with Severe Handicaps*, *15*, 250-260.

Iacano, T. (2003). Pragmatic development in individuals with developmental disabilities who use AAC. In J. Light, D. Beukelman, & J. Reichle (Eds.), *Communicative competence for individuals who use AAC: From research to effective practice* (pp. 323-360). Baltimore, MD: Paul H. Brookes Publishing Co., Inc.

Iacano, T., Carter, M., & Hook, J. (1998). Identification of intentional communication in students with severe and multiple disabilities. *Augmentative and Alternative Communication, 14*, 102-114.

Kent-Walsh, J., & McNaughton, D. (2005). Communication partner instruction in AAC: Present practices and future directions. *Augmentative and Alternative Communication, 21*, 195-204.

Light, J. (1988). Interaction involving individuals using augmentative and alternative communication systems: State of the art and future directions. *AAC: Augmentative and Alternative Communication, 4*, 66-82.

Light, J. (1989). Toward a definition of communicative competence for individuals using augmentative and alternative communication systems. *Augmentative and Alternative Communication, 5*, 137-143.

Light, J. (1997). "Communication is the essence of human life": Reflections on communicative competence. *Augmentative and Alternative Communication*, *13*, 61-70.

Light, J. (2003). Shattering the silence: Development of communicative competence by individuals who use AAC. In J. Light, D. Beukelman, & J. Reichle (Eds.), *Communicative competence for individuals who use AAC: From research to effective practice* (pp. 3-37). Baltimore, MD: Paul H. Brookes Publishing Co., Inc.

Light, J., Arnold, K.B., & Clark, E.A. (2003). Finding a place in the "social circle of life". In J. Light, D. Beukelman, & J. Reichle (Eds.), *Communicative competence for individuals who use AAC: From research to effective practice* (pp. 361-397). Baltimore, MD: Paul H. Brookes Publishing Co., Inc.

Light, J., Beukelman, D.R., & Reichle, J. (2003). *Communicative competence for individuals who use AAC: from research to effective practice*. Baltimore, MD: Paul H. Brookes Publishing Co., Inc.

Light, J., & Binger, C. (1998). *Building communicative competence with individuals who use augmentative and alternative communication*. Baltimore, MD. Paul H Brookes Publishing Co.

Light, J., Binger, C., Agate, T., & Ramsay, K. (1999). Teaching partner-focused questions to individuals who use augmentative and alternative communication to enhance their communicative competence. *Journal of Speech, Language, and Hearing Research, 42*, 241-255.

Light, J., Collier, B., & Parnes, P. (1985). Communicative interaction between young nonspeaking physically disabled children and their primary caregivers: Part I. Discourse patterns. *Augmentative and Alternative Communication, 1*, 74-83.

Light, J., Dattilo, J., English, J., Gutierrez, L., & Hartz, J. (1992). Instructing facilitators to support the communication of people who use augmentative communication systems. *Journal of Speech and Hearing Research, 35*, 865-875.

Lilienfeld, M, & Alant, E. (2005). The social interaction of an adolescent who uses AAC: The evaluation of a peer-training program. *Augmentative and Alternative Communication, 21*, 278-294

Martine, M.S., & Connolly, I. (2008). Roles of aided communication: Perspectives of adults who use AAC. *Disability and Rehabilitation: Assistive Technology, 3*, 260-273.

McCarthy, J., & Light, J. (2001). Instructional effectiveness of an integrated theater arts program for children using augmentative and alternative communication and their nondisabled peers: Preliminary study. *AAC: Augmentative and Alternative Communication, 17*, 88-98.

O'Keefe, B.M., Kozak, N.B., & Schuller, R. (2007). Research priorities in augmentative and alternative communication as identified by people who use AAC and their facilitators. *Augmentative and Alternative Communication, 23*, 89-96.

O'Neill, D.K. (2007). The language use inventory for young children: A parent-report measure of pragmatic language development for 18 to 47 month old children. *Journal of Speech, Language, and Hearing Research, 50*, 214-228.

Paul, R. (2007). *Language disorders from infancy through adolescence: Assessment and intervention*. St. Louis, MO: Mosby Elsevier.

Ratcliff, A., & Beukelman, D. (1995). Preprofessional preparation in augmentative and alternative communication: State of the art report. *AAC Augmentative and Alternative Communication, 11*, 61-73.

Ratcliff, A., Koul, R., & Lloyd, L.L. (2008). Preparation in augmentative and alternative communication: An update for speech-language pathology training. *American Journal of Speech-Language Pathology, 17*, 48-59.

Romski, M. A., Sevcik, R. A., & Wilkinson, K. M. (1994). Peer-directed communicative interactions of augmented language learners with mental retardation. *American Journal on Mental Retardation, 98*, 527-538.

Schiavetti, N., & Metz, D.E. (2006). *Evaluating research in communicative disorders* (5th ed.). Pearson Education, Inc.

Schweigert, P., & Rowland, C. (1992). Early communication and microtechnology: Instructional sequence and case studies of children with severe multiple disabilities. *Augmentative and Alternative Communication, 8*, 273-286.

Smith, M.M., & Connolly, I. (2008). Roles of aided communication: Perspectives of adults who use AAC. *Disability and Rehabilitation: Assistive Technology, 3*, 260-273.

Smith, M.M., & Grove, N.C. (2003). Asymmetry in input and output for individuals who use AAC. In J. Light, D. Beukelman, & J. Reichle (Eds.), *Communicative competence for individuals who use AAC: From research to effective practice* (pp. 163-191). Baltimore, MD: Paul H. Brookes Publishing Co., Inc.

Wetherby, A., Cain, D., Yonclas, D., & Walker, V. (1988). Analysis of intentional communication of normal children from prelinguistic to the multiword stage. *Journal of Speech and Hearing Research, 31*, 240-252.

Whitmire, K.A. (2000) Adolescents as a developmental phase: A tutorial. *Topics in Language Disorders, 20* (2), 1-14.

Wilkinson, K. M., & Romski, M. A. (1995). Responsiveness of male adolescents with mental retardation to input from nondisabled peers: The summoning power of comments, questions, and directive prompts. *Journal of Speech and Hearing Research, 38*, 1045-1053.

Wolfberg, P.J., & Schuler, A.L. (2006). Promoting social reciprocity and symbolic representation in children with autism spectrum disorders: Designing quality peer play interventions. In T. Charman & W. Stone (Eds.), *Social and communication development in autism spectrum disorders: Early identification, diagnosis, and intervention* (pp. 180-218). New York, NY: The Guilford Press.